

# MorphBank

## V2.2

### User Manual

MorphBank... an  
open web repository  
of images

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# Introducing MorphBank

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**MorphBank is an open web repository** of images serving the biological research community. It is currently being used to document 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.

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**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.

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**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 identical but physically separate systems on the FSU campus, each with a 1 TB RAID and tape 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.



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# 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

## 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 102X768x600 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 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/>.

## 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<sup>®</sup> (OS X Default), or a Mac OS X compatible version of Netscape<sup>®</sup> Navigator or Communicator, Mozilla Firefox<sup>™</sup>, or Microsoft<sup>®</sup> Internet Explorer (MSIE). A web browser is needed to access MorphBank.
  - **Adobe<sup>®</sup> Reader<sup>®</sup>:** 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 must be enabled for this site. Also, Java<sup>™</sup> and Javascript<sup>™</sup> 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/>

# How to Contribute 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 user name and password.
2. **Automatic uploading from an image**-In the summer 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 worksheet and the corresponding user's manual. The contributors can deliver to MorphBank a CD or DVD containing images and an excel data entry worksheet 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 sheet named mBdet.xls and all associated images. Be sure to have the correct image file names as they appear in mBdet.xls. You can deliver your data to MorphBank admin team 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 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.
- Provide the name of your directory/repository from where we can directly download mBdet.xls through an anonymous FTP and the corresponding images. You should also set a time slot of when we



can do the file transfer. Be aware that during this time slot your data will be publicly accessible.

**Land Mail Address for delivered uploading**

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

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 apposed to the exact area within that county where the specimen was collected).

Many research teams are interested in depositing working sets of images in MorphBank without making them immediately available to users outside of their team. We will be offering these services in the next major release of the MorphBank system, scheduled for spring 2006.

For further information about these options contact the MorphBank admin. group at [mbadmin@scs.fsu.edu](mailto:mbadmin@scs.fsu.edu)



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# 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](mailto: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 which groups for which they may have membership.
- **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.

**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.

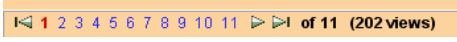
- **Guest** has read only access. No login is required for this user role. A guest user is only allowed to view information that has passed the release date. This applies to biological data only. The casual user cannot browse group or user information and may not make any data entries or annotations.
  - **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 have 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.
- M** **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.

- **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.

# Guide to Graphic Buttons

	Select this button to show associated image.
	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.
Views    Select Go	Examples of various instructional buttons, that when selected, will perform the function displayed on the button.
	Select to show the next taxonomic level.
	Show alphabetically all taxonomic names stored in MorphBank.

	Select edit to alter data. This option is only available to those authorized through login permissions.
	Select item to annotate. This option is only available to authorized users.
	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.
	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.
	Select for on screen instruction
	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 heirarchy lists

— e — U —  
Screen U

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## Guide to Browse, Search, Login and Submit

This guide includes information for traversing and populating the MorphBank online database.

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
- Browser keyboard shortcuts to find a keyword (i.e. internet explorer, mozilla use control-F) and type in keyword, These vary according to the machine and browser being used.

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## Getting Started

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

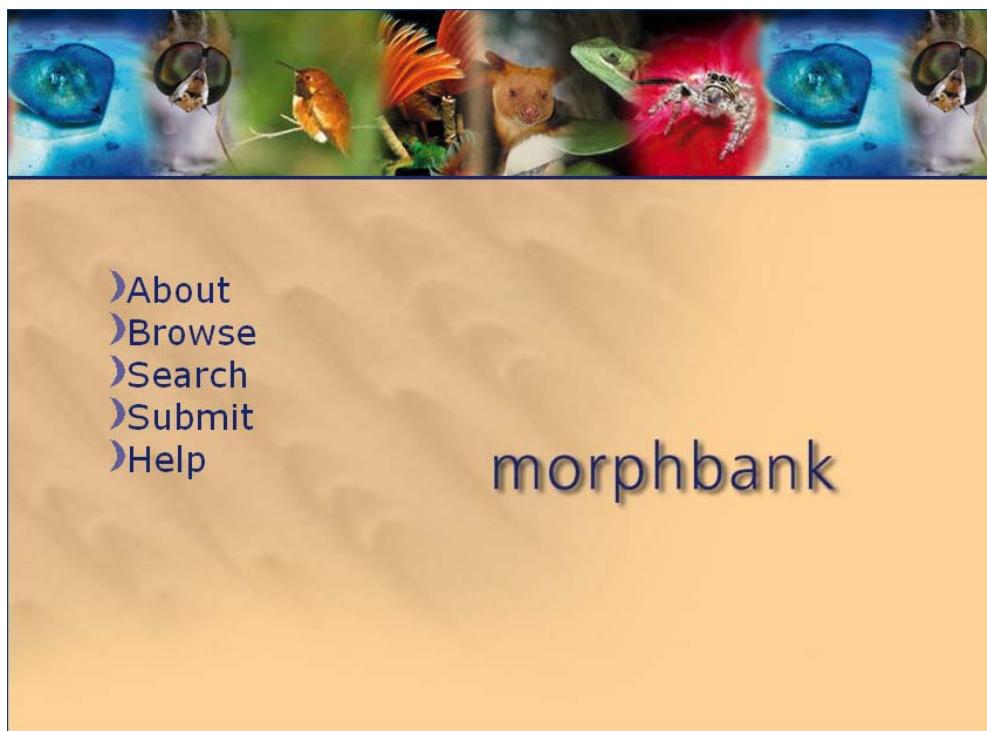


Figure 2    Opening Screen to morphbank.net

## From the opening screen users can select:

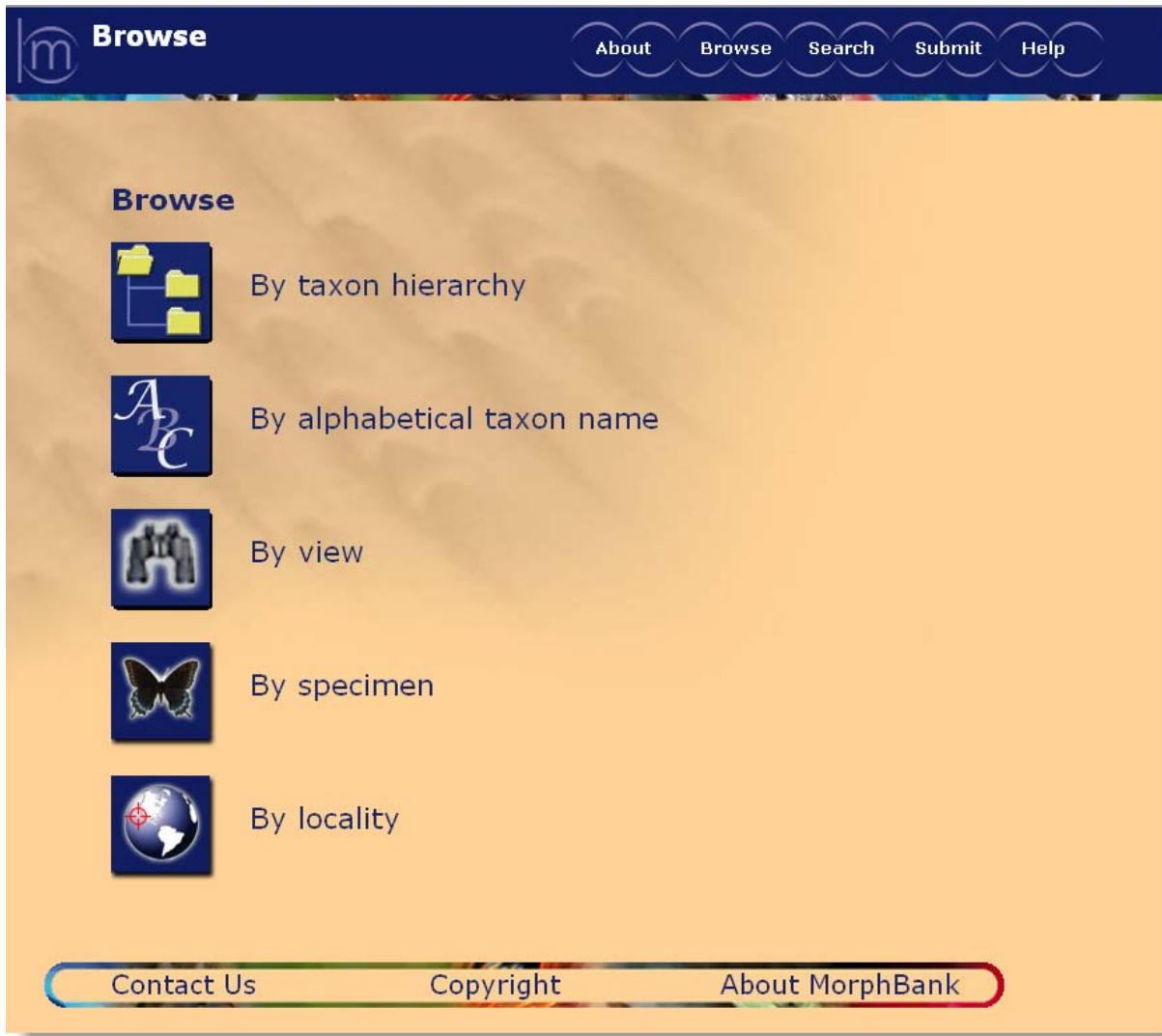


- » [About](#)
- » [Browse](#)
- » [Search](#)
- » [Submit](#)
- » [Help](#)

- **About** - find more detailed information about the history of MorphBank and view current news.
- **Browse** - traverse the database tree by taxon hierarchy, alphabetical taxon name, view, specimen or locality. Users have varied tools to access within browse based on user privileges assigned through login.
- **Search** - find specific data through the use of simple or field search. Users have varied tools to access within search based on user privileges assigned through login.
- **Submit** - login, access, add and modify (not covered in this guide) data. Users will be required to login into the system with a valid username and password. Once logged into the system, modules for which they have access will appear. Without login, only information that can be browsed or searched (specimen, image, or view data) can be seen.
- **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. No data is entered in this option.



The screenshot shows the MorphBank.net Browse interface. At the top, there's a dark blue header bar with the MorphBank logo on the left and navigation links for About, Browse, Search, Submit, and Help on the right. Below the header is a decorative banner with a desert landscape background. The main content area is titled "Browse" and contains five items, each with an icon and a link:

-  By taxon hierarchy
-  By alphabetical taxon name
-  By view
-  By specimen
-  By locality

At the bottom, there's a footer bar with links for Contact Us, Copyright, and About MorphBank.

Figure 3    Browse



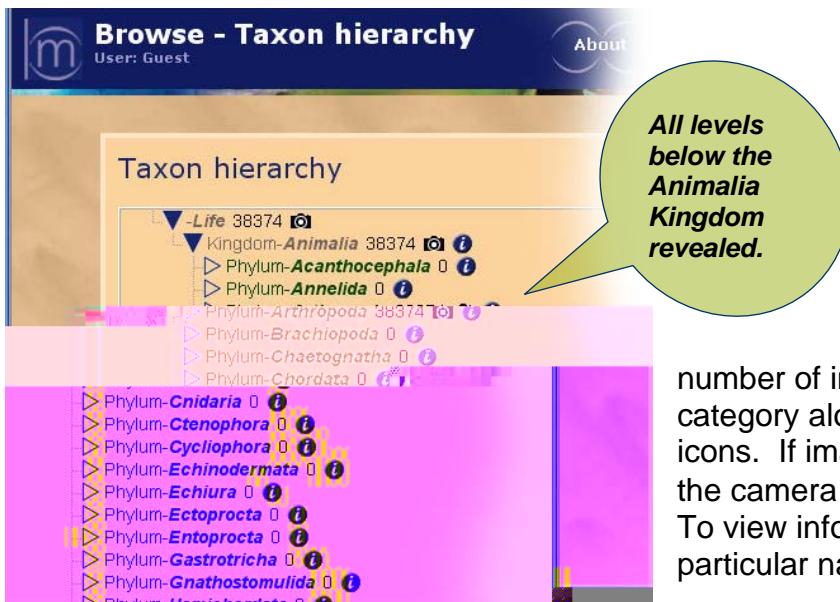
Guide to: Browse

The browse option does not require login, however, logged in users have varied tools accessible within browse based on user privileges. There are five browse options (Fig. 3): by taxon hierarchy (the user has the option of viewing all Kingdoms from the top level of the taxonomic hierarchy), by alphabetical taxon name (all taxonomic names associated with specimens and images within the database are listed), by view (the user is presented with a sortable list of all the registered views within the database), by specimen (the user can view and sort a list of all specimens currently located on the MorphBank database), and by locality (a sortable list of all available localities are offered).

## Browse -Taxon Hierarchy



Figure 4    Browse-Taxon Hierarchy



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,

Figure 5    Browse-Taxon Hierarchy Showing Levels

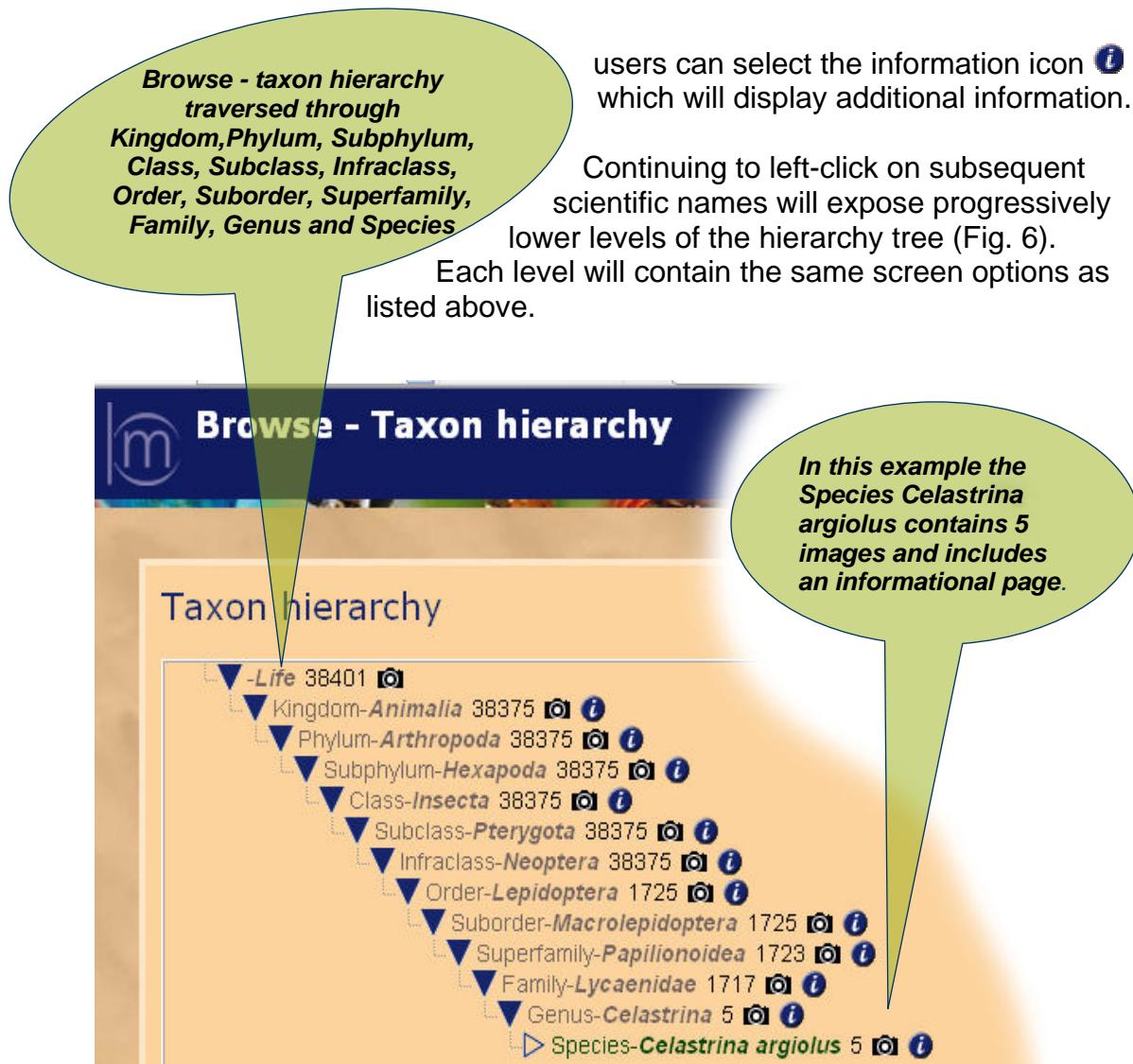


Figure 6    Browse-Taxon Hierarchy Showing Levels

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 ► (Fig. 7). Click the arrow again to return to the previous state.

Figure 7    Taxon Hierarchy All Levels Colapsed

**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 (Fig. 6).

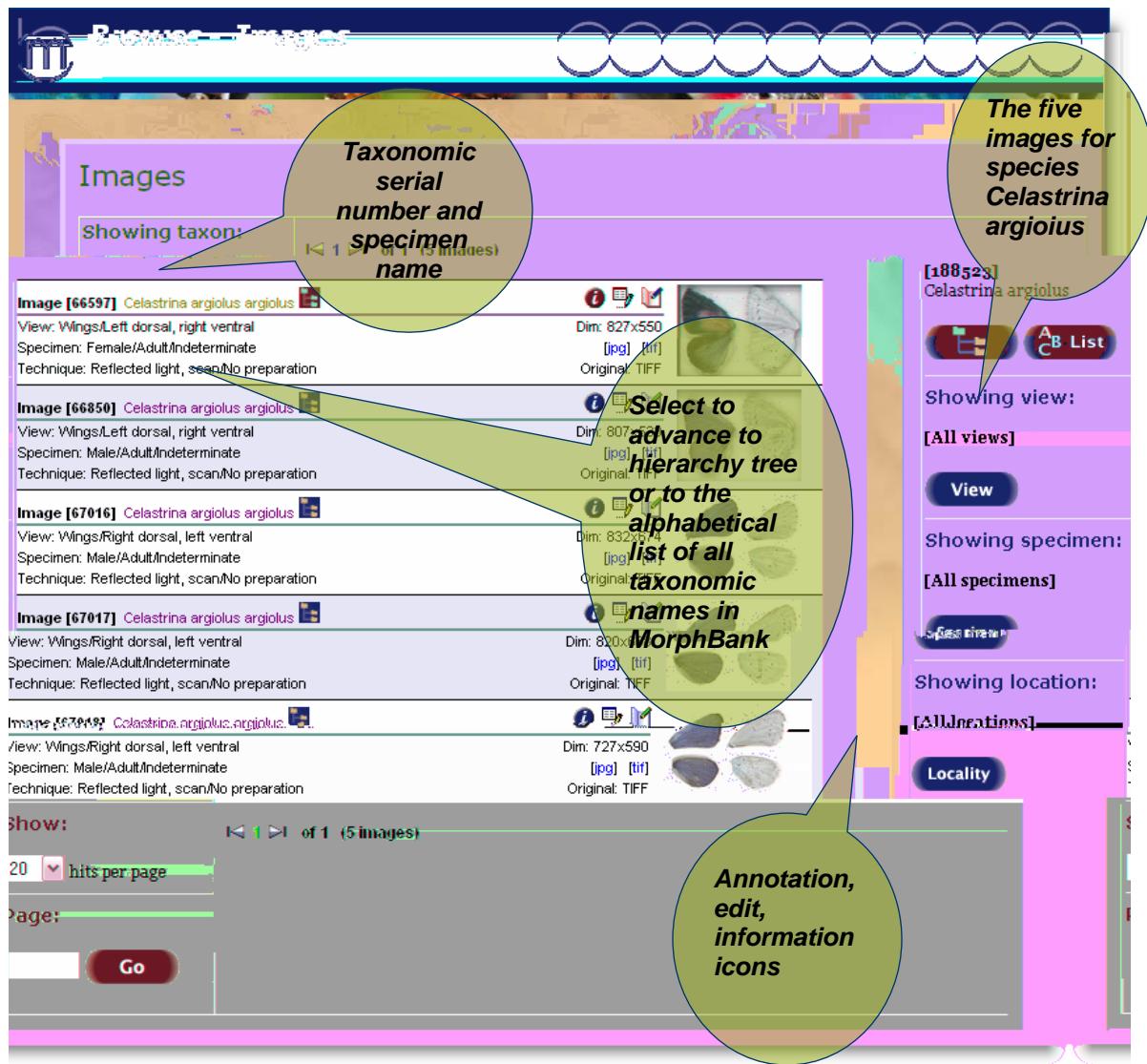


Figure 8 Example of Browse-Images

### Screen Use Tips:

Selecting the view , specimen , or locality  buttons will list all views, specimens or localities currently available in MorphBank listed by date they were entered into the system.

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 (Fig. 10). 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.

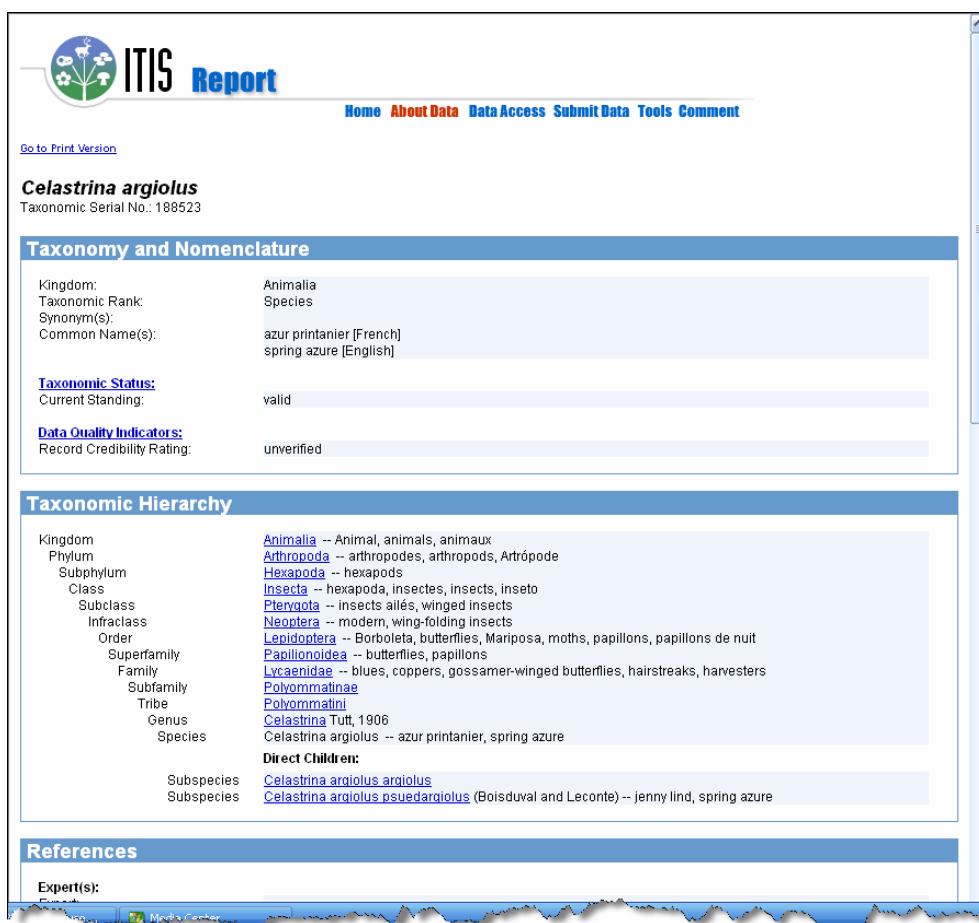
## Example: ITIS Report

Displayed from Information  Icon, [browse -taxon hierarchy](#) page (Fig. 6).

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 consistant 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.



**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	<a href="#">Animalia</a> -- Animal, animals, animaux
Phylum	<a href="#">Arthropoda</a> -- arthropodes, arthropods, Artrópode
Subphylum	<a href="#">Hexapoda</a> -- hexapods
Class	<a href="#">Insecta</a> -- hexapoda, insectes, insects, inseto
Subclass	<a href="#">Pterygota</a> -- insects ailes, winged insects
Infraclass	<a href="#">Neoptera</a> -- modern, wing-folding insects
Order	<a href="#">Lepidoptera</a> -- Borboleta, butterflies, Mariposa, moths, papillons, papillons de nuit
Superfamily	<a href="#">Papilionoidea</a> -- butterflies, papillons
Family	<a href="#">Lycaenidae</a> -- blues, coppers, gossamer-winged butterflies, hairstreaks, harvesters
Subfamily	<a href="#">Polyommatinae</a>
Tribe	<a href="#">Polyommatus</a>
Genus	<a href="#">Celastrina</a> Tutt, 1906
Species	Celastrina argiolus -- azur printanier, spring azure
Subspecies	<a href="#">Celastrina argiolus argiolus</a>
Subspecies	<a href="#">Celastrina argiolus pseudargiolus</a> (Boisduval and Leconte) -- jenny lind, spring azure

**Direct Children:**

- [Celastrina argiolus argiolus](#)
- [Celastrina argiolus pseudargiolus](#) (Boisduval and Leconte) -- jenny lind, spring azure

**References**

Expert(s):

Figure 9    Sample ITIS Report-Partial Page

## Example: Image Record

Displayed from the information  icon, **browse images** page (Fig. 8).  
 This page displays Information unique to this image.

MorphBank  
issued image id

**Image record: [66597] Celastrina argiolus argiolus**

<p><b>Submitted by:</b> Martin Wiemers </p> <p><b>Submitted date:</b> 05-01-2004</p> <p><b>Published date:</b> 05-01-2004</p> <hr/> <p><b>Access #:</b> 4590</p> <p><b>Maognification:</b> NULL</p> <p><b>Dimension (px):</b> 550x827</p> <p><b>Resolution (PPI):</b> 600</p> <p><b>Sudmited as:</b> TIFF</p> <hr/> <p><b>View id:</b> 63978</p> <p><b>Specimen part:</b> [93] - Wings</p> <p><b>Angle:</b> [41] - Left dorsal, right ventral</p> <p><b>Technique:</b> [28] - Reflected light, scan</p> <p><b>Preparation:</b> [77344] - No preparation</p> <hr/> <p><b>Download:</b> <a href="#">tiff</a> (1.3 MB)  <a href="#">jpeg</a> (97.95 KB)</p> <hr/> <p><b>Specimen id:</b> 64872</p> <p><b>Basis of record:</b> [S] - Specimen</p> <p><b>Sex:</b> [97] - Female</p> <p><b>Form:</b> [104] - Indeterminate</p> <p><b>Stage:</b> [95] - Adult</p> <p><b>Collector:</b> Martin Wiemers</p> <p><b>Date collected:</b> 07-09-2002</p> <hr/> <p><b>Class:</b> Insecta</p> <p><b>Order:</b> Lepidoptera</p> <p><b>Family:</b> Lycaenidae</p> <p><b>Genus:</b> Celastrina</p> <p><b>Species:</b> Celastrina argiolus</p> <p><b>Subspecies:</b> Celastrina argiolus argiolus</p>	
---	---

blue font is  
selectable to  
reveal  
additional  
information

This image has no annotations

Figure 10 Example of Image Record

## Browse - Taxon Names



**Browse - Taxon names**

About    Browse    Search    Submit    Help

Taxon names

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z (Notes)

**A**

Abrus (1)	Abrus precatorius (1)
Acanthaegilips (47)	Acanthaegilips ashmeadi (16)
Acanthaegilips brasiliensis (16)	Acanthaegilips macropennis (15)
Acantheucoela (28)	Acraspis (56)
Acraspis erinacei (56)	Aegeseucoela (43)
Aegeseucoela flavotincta (43)	Aganaspis (34)
Aganaspis pelleranoi (34)	Agrostocynips (21)
Agrostocynips clavatus (21)	Alabagrus (865)
Alabagrus albispina (17)	Alabagrus arawak (29)
Alabagrus arua (25)	Alabagrus cara (14)
Alabagrus cocto (16)	Alabagrus cuna (17)
Alabagrus derailersi (17)	Alabagrus diegeli (17)
Alabagrus donnai (18)	Alabagrus englishi (17)
Alabagrus haenschi (16)	Alabagrus imitatus (17)
Alabagrus intimapa (17)	Alabagrus ixtilton (16)
Alabagrus janzeni (17)	Alabagrus jatunqepi (16)
Alabagrus kagaba (16)	Alabagrus kiska (17)
Alabagrus latisoma (16)	Alabagrus latreillei (17)
Alabagrus leptosoma (17)	Alabagrus maculipes (22)
Alabagrus marginatifrons (19)	Alabagrus masneri (17)
Alabagrus maya (16)	Alabagrus mojos (22)
Alabagrus nigrilittulus (21)	Alabagrus pachamama (34)
Alabagrus paruyana (17)	Alabagrus parvifaciatus (17)
Alabagrus pecki (17)	Alabagrus roibasi (17)
Alabagrus sarapiqui (17)	Alabagrus semialbus (17)
Alabagrus stigma (17)	Alabagrus texanus (33)

Figure 11 Browse-Taxon Names -Partial Page

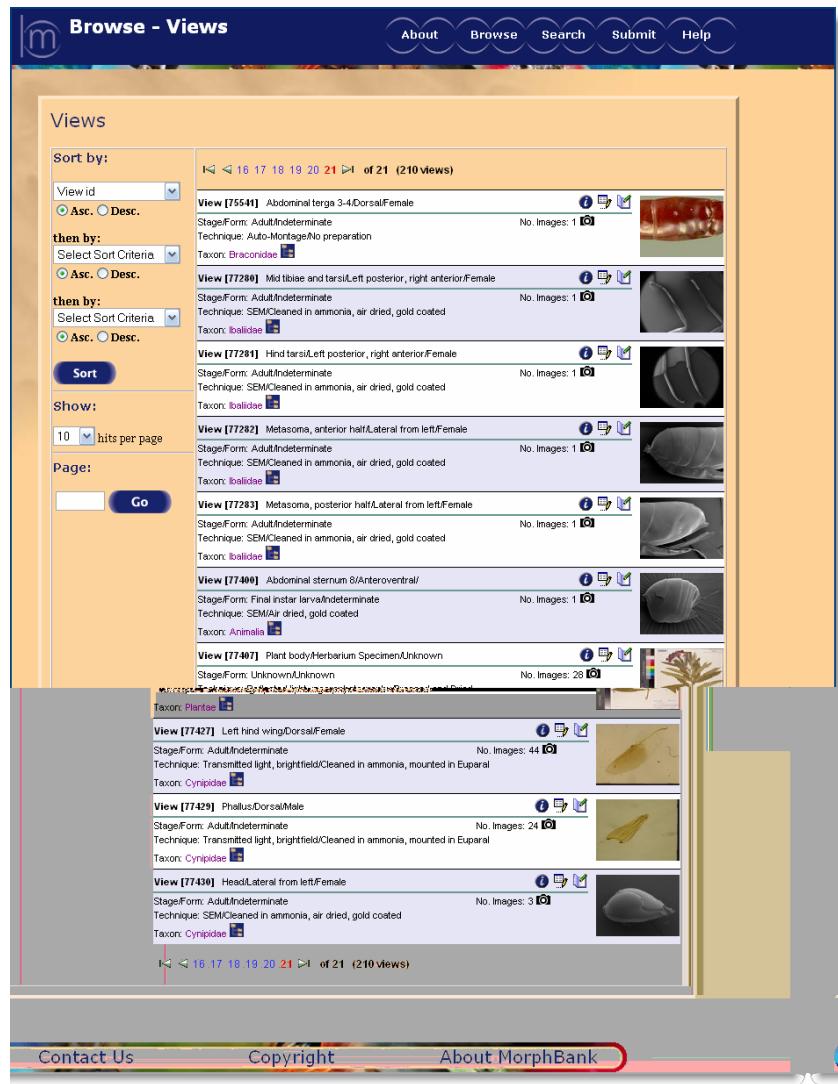
In this option, users can avoid possible spelling or name recollection difficulties by using the **Browse - Taxon Names** option. All taxonomic names associated

(Fig. 10). Users may select the camera  beside a taxonomic name to display a list of associated images (as in Fig 7). Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name (as in Fig. 4, 5, or 6).

**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 'Views' section of the MorphBank interface. On the left, there is a sidebar with sorting options: 'Sort by' (View id, Asc. or Desc.), 'then by' (Select Sort Criteria, Asc. or Desc.), and 'Show' (10 hits per page). Below these are buttons for 'Sort' and 'Go'. The main area displays a list of 21 views, each with a link, stage form, technique, taxon, and a thumbnail image. The views listed are:

- View [75541]** Abdominal terga 3-4/Dorsal/Female  
StageForm: Adult/Indeterminate  
Technique: Auto-Montage/No preparation  
Taxon: Braconidae
- View [77280]** Mid tibiae and tarsi/Left posterior, right anterior/Female  
StageForm: Adult/Indeterminate  
Technique: SEM/Cleaned in ammonia, air dried, gold coated  
Taxon: Ichneumonidae
- View [77281]** Hind tarsi/Left posterior, right anterior/Female  
StageForm: Adult/Indeterminate  
Technique: SEM/Cleaned in ammonia, air dried, gold coated  
Taxon: Ichneumonidae
- View [77282]** Metasoma, anterior half/Lateral from left/Female  
StageForm: Adult/Indeterminate  
Technique: SEM/Cleaned in ammonia, air dried, gold coated  
Taxon: Ichneumonidae
- View [77283]** Metasoma, posterior half/Lateral from left/Female  
StageForm: Adult/Indeterminate  
Technique: SEM/Cleaned in ammonia, air dried, gold coated  
Taxon: Ichneumonidae
- View [77400]** Abdominal sternum 8/Anteroventral/  
StageForm: Final instar larva/Indeterminate  
Technique: SEM/air dried, gold coated  
Taxon: Animalia
- View [77407]** Plant body/Herbarium Specimen/Unknown  
StageForm: Unknown/Unknown  
Technique: SEM/Cleaned in ammonia, air dried, gold coated  
Taxon: Plantae
- View [77427]** Left hind wing/Dorsal/Female  
StageForm: Adult/Indeterminate  
Technique: Transmitted light, brightfield/Cleaned in ammonia, mounted in Euparal  
Taxon: Cynipidae
- View [77429]** Phellus/Dorsal/Male  
StageForm: Adult/Indeterminate  
Technique: Transmitted light, brightfield/Cleaned in ammonia, mounted in Euparal  
Taxon: Cynipidae
- View [77430]** Head/Lateral from left/Female  
StageForm: Adult/Indeterminate  
Technique: SEM/Cleaned in ammonia, air dried, gold coated  
Taxon: Cynipidae

At the bottom of the list, there is a navigation bar with links for 'Contact Us', 'Copyright', and 'About MorphBank'.

Figure 12 Browse-Views

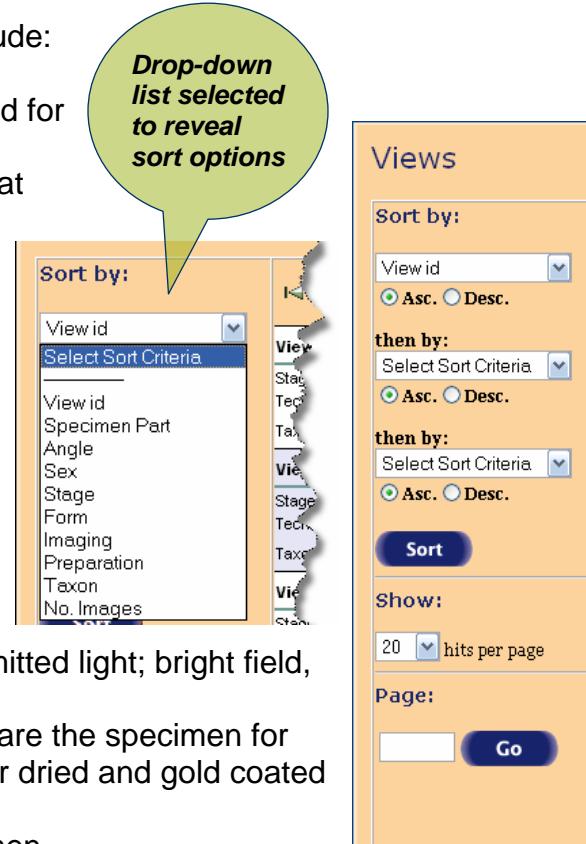
A view specifies the criteria (the type of taxa, view angle, preparation technique, etc.) under which a photograph was taken. By selecting the **view** option, the user is presented with a list of all the registered views within the database (Fig. 12).

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 (Fig. 12, 13). 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 id 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, ovulate cone, unknown, etc.
- Imaging: technique used to capture photo such as auto-montage, transmitted light; bright field, etc.
- Preparation: 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



**Figure 13 Views Sort Options**

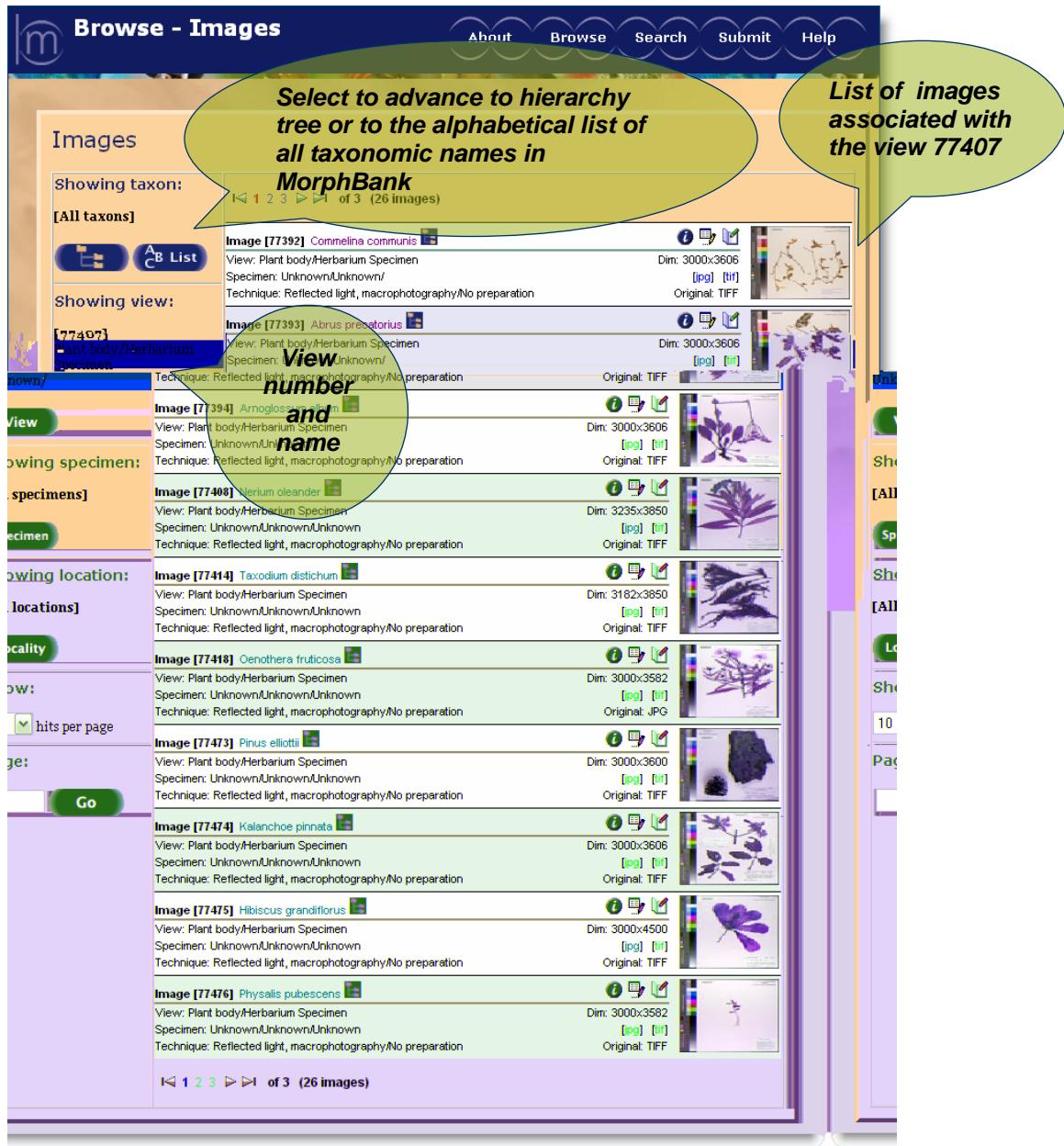
#### Screen Use Tips:

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 (Fig. 12, 13). 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.)

As located in Fig. 11, 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 (see Fig. 16). Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name (as in Fig. 6). 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 (Fig. 12).



**Select to advance to hierarchy tree or to the alphabetical list of all taxonomic names in MorphBank**

**List of images associated with the view 77407**

**View**

Image ID	Species	View	Specimen	Technique	Dimensions	File Types	Original File Type
[77392]	Commelinia communis	Plant body/Herbarium Specimen	Unknown/Unknown/	Reflected light, macrophotography/No preparation	3000x3606	[jpg] [tiff]	Original: TIFF
[77393]	Abrus precatorius	Plant body/Herbarium Specimen	View: Unknown	Reflected light, macrophotography/No preparation	3000x3606	[jpg] [tiff]	Original: TIFF
[77394]	Amoglossum sp.	Plant body/Herbarium Specimen	Unknown/Unknown/	Reflected light, macrophotography/No preparation	3000x3606	[jpg] [tiff]	Original: TIFF
[77408]	Nerium oleander	Plant body/Herbarium Specimen	Unknown/Unknown/Unknown	Reflected light, macrophotography/No preparation	3235x3850	[jpg] [tiff]	Original: TIFF
[77414]	Taxodium distichum	Plant body/Herbarium Specimen	Unknown/Unknown/Unknown	Reflected light, macrophotography/No preparation	3182x3850	[jpg] [tiff]	Original: TIFF
[77418]	Oenothera fruticosa	Plant body/Herbarium Specimen	Unknown/Unknown/Unknown	Reflected light, macrophotography/No preparation	3000x3582	[jpg] [tiff]	Original: JPG
[77473]	Pinus elliottii	Plant body/Herbarium Specimen	Unknown/Unknown/Unknown	Reflected light, macrophotography/No preparation	3000x3600	[jpg] [tiff]	Original: TIFF
[77474]	Kalanchoe pinnata	Plant body/Herbarium Specimen	Unknown/Unknown/Unknown	Reflected light, macrophotography/No preparation	3000x3606	[jpg] [tiff]	Original: TIFF
[77475]	Hibiscus grandiflorus	Plant body/Herbarium Specimen	Unknown/Unknown/Unknown	Reflected light, macrophotography/No preparation	3000x4500	[jpg] [tiff]	Original: TIFF
[77476]	Phytalis pubescens	Plant body/Herbarium Specimen	Unknown/Unknown/Unknown	Reflected light, macrophotography/No preparation	3000x3582	[jpg] [tiff]	Original: TIFF

**Images**

Showing taxon: [\[All taxons\]](#)

Showing view: [\[77407\]](#) [Plant body/Herbarium Specimen](#)

Showing specimen: [specimens](#)

Showing location: [locations](#)

hits per page:

Go

**About** **Browse** **Search** **Submit** **Help**

Figure 14 Example of Browse – Images

## Example: Thumbnail image enlarged

When selecting **[jpg] or [tif]** from an images page such as Fig. 14, any thumbnail image can be reproduced in its original format (images with other formats will list that option).

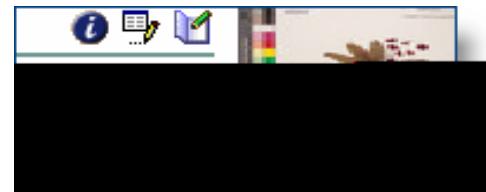


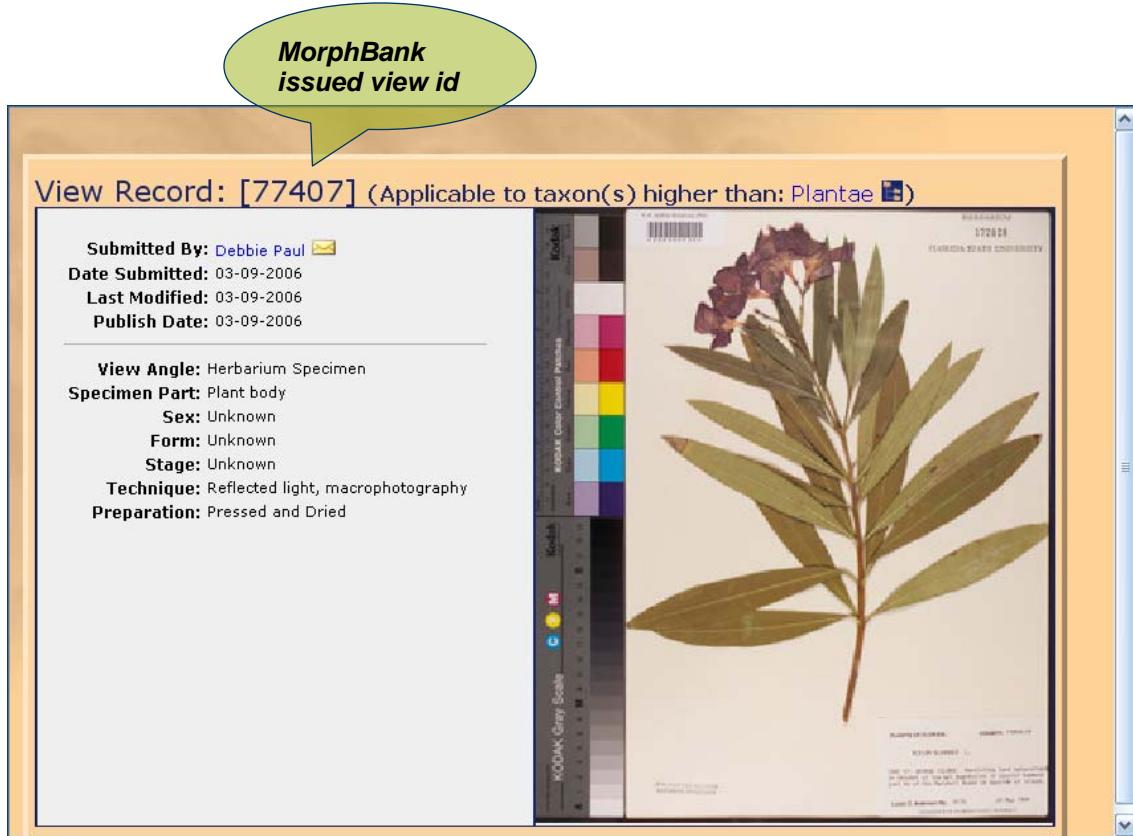
Image Thumbnail  
from Fig. 14



**Figure 15 Example of Thumbnail Image When [JPG] or [TIF] Selected**

## Example: View Record Page

Displayed from the information  Icon, **browse-views** page (Fig. 12)



MorphBank issued view id

**View Record: [77407]** (Applicable to taxon(s) higher than: Plantae 

**Submitted By:** Debbie Paul 

**Date Submitted:** 03-09-2006

**Last Modified:** 03-09-2006

**Publish Date:** 03-09-2006

**View Angle:** Herbarium Specimen

**Specimen Part:** Plant body

**Sex:** Unknown

**Form:** Unknown

**Stage:** Unknown

**Technique:** Reflected light, macrophotography

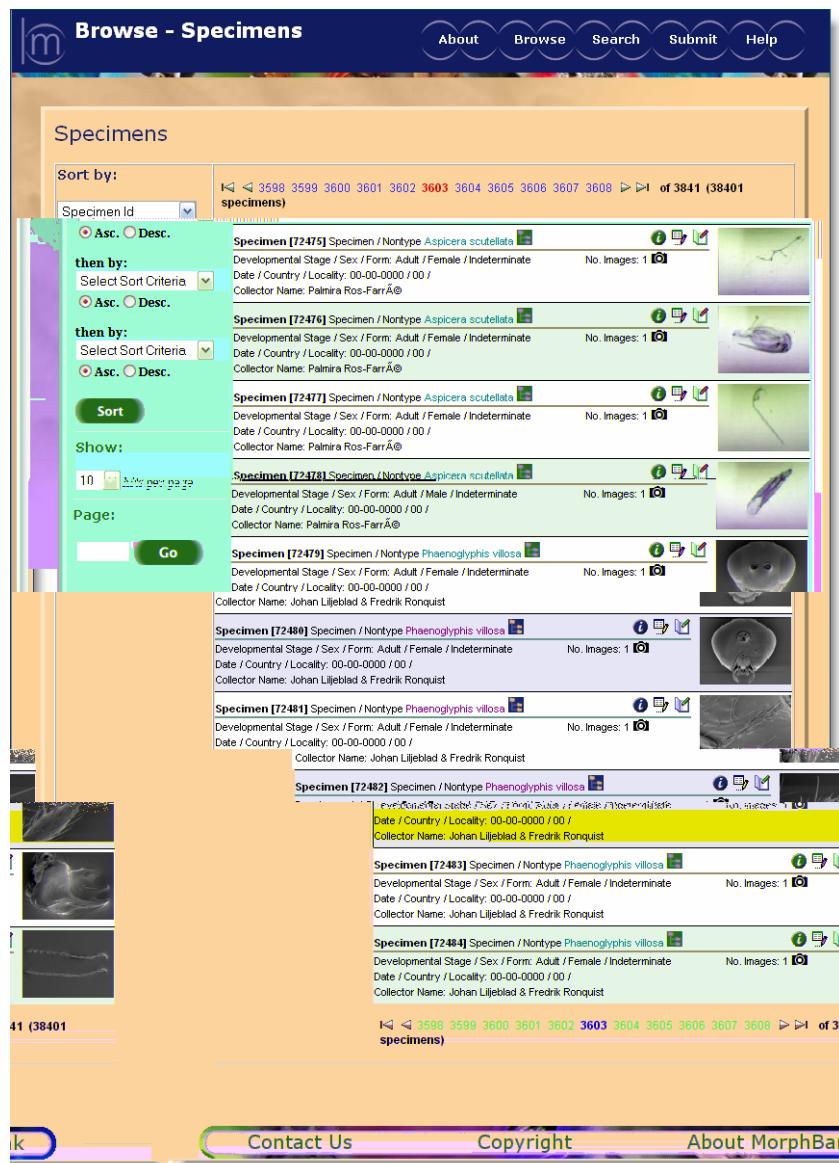
**Preparation:** Pressed and Dried

KODAK Color Reference Patch  
KODAK Color Scale  
KODAK Gray Scale



Figure 16 Example of View Record

## Browse-Specimens



The screenshot shows the 'Browse - Specimens' interface. At the top, there are links for 'About', 'Browse', 'Search', 'Submit', and 'Help'. The main area is titled 'Specimens' and includes a 'Sort by:' section with dropdown menus for 'Specimen Id' (selected), 'Asc.' or 'Desc.', 'then by:', 'Select Sort Criteria', 'Asc.' or 'Desc.', and 'Show:' (set to 10). Below this is a 'Page:' dropdown set to '1'. A 'Go' button is located at the bottom of the sort section. The main content area displays a list of 10 specimen entries, each with a thumbnail image, specimen ID, name, developmental stage, sex, form, date, country, locality, and collector information. The first entry is 'Specimen [72475] Specimen / Notype *Aspicera scutellata*'.

Figure 17 Browse-Specimens

By selecting the **browse- specimens** option, the user will be presented with a list of all specimens registered in the MorphBank database. 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 (Fig. 17, 18). 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 id 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: specimens may have a form of parthenogenetic, indeterminate, ovulate cone, 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

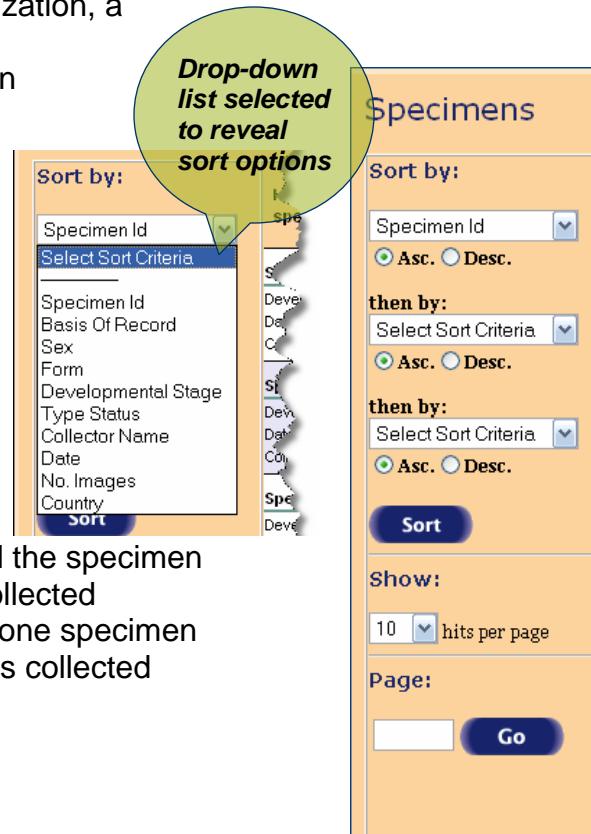


Figure 18 Specimens Sort Options

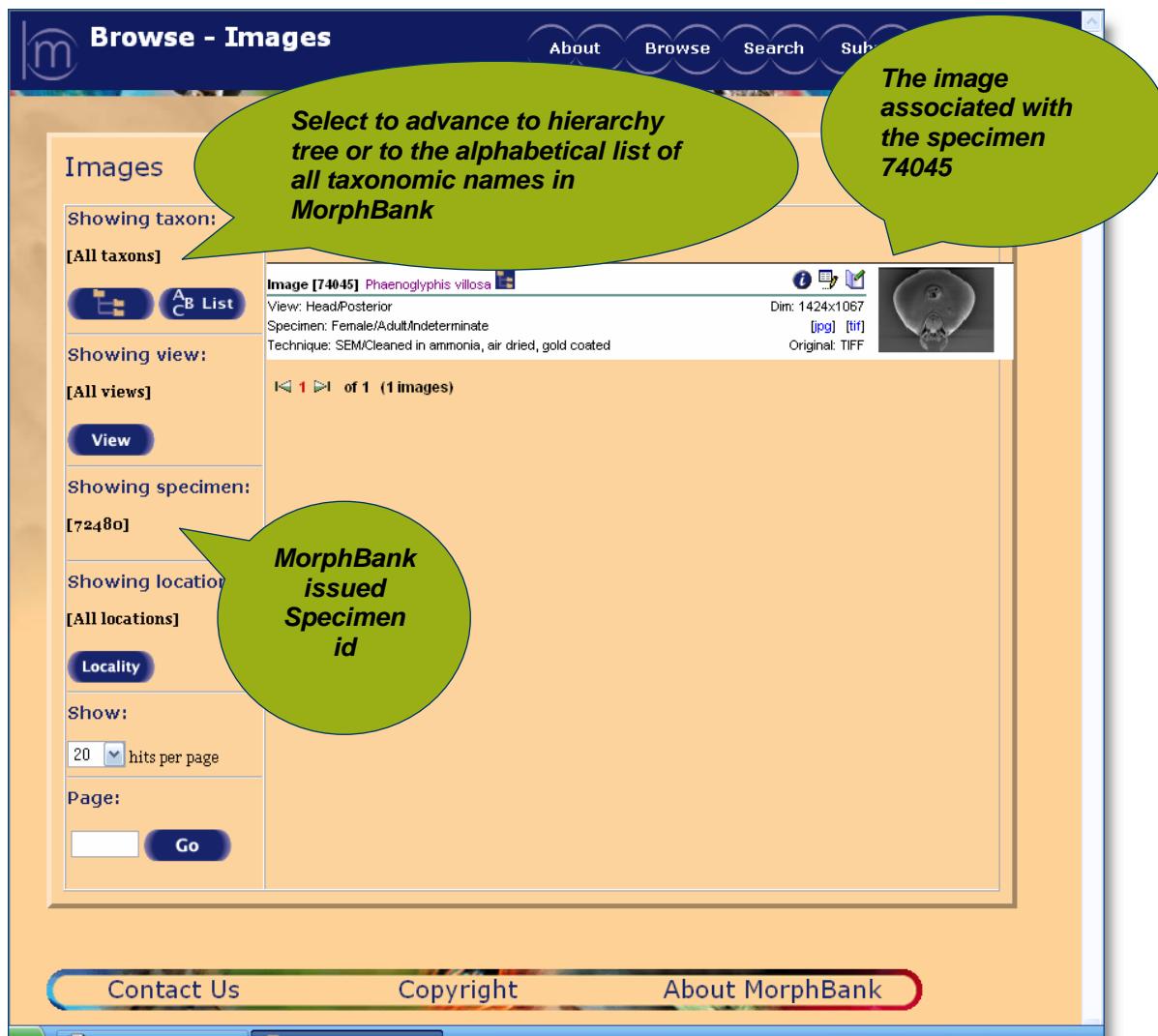
#### Screen Use Tips:

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 **Go** button (Fig. 17, 18). 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.)

As located in Fig. 17, selecting the camera  will display all images associated with that view regardless of their taxonomic value (Fig. 19) or selecting the information icon  will display detailed information about that view (as in Fig. 20). Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name (as in Fig. 6). 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 (Fig. 17).



The screenshot shows the 'Browse - Images' page of MorphBank. The left sidebar contains filters for taxon, view, specimen, location, and search parameters. The main area displays a single image of a specimen with detailed metadata. Three callout bubbles highlight specific features:

- A large green bubble points to the sidebar filters with the text: "Select to advance to hierarchy tree or to the alphabetical list of all taxonomic names in MorphBank".
- A green bubble points to the image thumbnail with the text: "The image associated with the specimen 74045".
- A green bubble points to the specimen ID '74045' in the sidebar with the text: "MorphBank issued Specimen id".

**Image [74045] *Phaenoglyphis villosa***

View: Head/Posterior  
Specimen: Female/Adult/Undeterminate  
Technique: SEM/Cleaned in ammonia, air dried, gold coated

Dim: 1424x1067  
[jpg] [tif]  
Original: TIFF

◀ 1 ▶ of 1 (1 images)

Contact Us Copyright About MorphBank

Figure 19 Example of Browse-Images

## Example: Specimen Record Page

Displayed from the information  icon, **browse-specimens** page (Fig. 17). This page displays Information unique to this specimen.

MorphBank  
issued Specimen  
id

blue font is  
selectable to  
reveal  
additional  
information

Specimen Record: [72258] *Synergus colombianus* 

<p><b>Submitted By:</b> Jose Luis Nieves-Aldrey </p> <p><b>Date Submitted:</b> 04-15-2005</p> <p><b>Last Modified:</b> 04-15-2005</p> <p><b>Publish Date:</b> 04-15-2005</p> <hr/> <p><b>Specimen Id:</b> 72258</p> <p><b>Basis of Record:</b></p> <ul style="list-style-type: none"> <li><b>Sex:</b> Female</li> <li><b>Form:</b> Indeterminate</li> <li><b>Stage:</b> Adult</li> </ul>	
<p><b>Collection</b></p> <p><b>Collector:</b> J.L. Nieves-Aldrey</p> <p><b>Institution:</b></p> <p><b>Collection Code:</b></p> <p><b>Catalog:</b></p> <p><b>Collection Num:</b></p> <p><b>Date Collected:</b> 0000-00-00 00:00:00</p>	<p><b>Locality</b></p> <p><b>Locality Id:</b> [67788]</p> <p><b>Locality:</b> Iguaque</p> <p><b>Continent:</b> SOUTH AMERICA</p> <p><b>Country:</b> COLOMBIA</p> <p><b>Latitude:</b></p> <p><b>Longitude:</b></p> <p><b>Precision:</b></p> <p><b>Elevation (m):</b></p> <p><b>Depth (m):</b></p>
<p><b>Determination</b></p> <p><b>Class:</b> Insecta </p> <p><b>Order:</b> Hymenoptera </p> <p><b>Family:</b> Cynipidae </p> <p><b>Genus:</b> Synergus </p>	<p><b>Determination Annotation</b></p>

Figure 20 Example of Specimen Record

## Browse-Locality

**Browse - Locality**

About    Browse    Search    Submit    Help

**Locality**

**Sort by:**  
 Location Id    Asc.   Desc.  
**then by:**  
 Select Sort Criteria    Asc.   Desc.  
**then by:**  
 Select Sort Criteria    Asc.   Desc.

**Show:**  
 10 hits per page    Go

Locality [ID]	Location	Images
Locality [103]	NORTH AMERICA / UNITED STATES Locality: Laboratory - FSU Latitude/Longitude: / Elevation (m):	No. Images: 31924
Locality [63996]	ASIA / TURKEY Locality: Sac Cecidi (2000 m) Agri Latitude/Longitude: / Elevation (m): 2000	No. Images: 1
Locality [63997]	ASIA / TAJIKISTAN Locality: Safedou (2500 m) Latitude/Longitude: / Elevation (m): 2500	No. Images: 1
Locality [63998]	AFRICA / MOROCCO Locality: 10 km N Tizi-n-Test (1700m) Marrakech Latitude/Longitude: / Elevation (m): 1700	No. Images: 1
Locality [63999]	ASIA / IRAN, ISLAMIC REPUBLIC OF Locality: 25 km N Torbat-e-Heydariyeh (1700-1800 m) Khorasan Latitude/Longitude: / Elevation (m): 1700 - 1800	No. Images: 1
Locality [64000]	ASIA / IRAN, ISLAMIC REPUBLIC OF Locality: 25 km W Falud Mahalleh (2300 m) Semnan Latitude/Longitude: / Elevation (m): 2300	No. Images: 1
Locality [64001]	ASIA / IRAN, ISLAMIC REPUBLIC OF Locality: 30 km W Dorud (2100m) Lorestan Latitude/Longitude: / Elevation (m): 2100	No. Images: 1
Locality [64002]	ASIA / IRAN, ISLAMIC REPUBLIC OF Locality: 31 km W Dorud (2100m) Lorestan Latitude/Longitude: / Elevation (m): 2100	No. Images: 1
Locality [64003]	ASIA / IRAN, ISLAMIC REPUBLIC OF Locality: 32 km W Dorud (2100m) Lorestan Latitude/Longitude: / Elevation (m): 2100	No. Images: 1
Locality [64004]	ASIA / IRAN, ISLAMIC REPUBLIC OF Locality: 33 km W Dorud (2100m) Lorestan Latitude/Longitude: / Elevation (m): 2100	No. Images: 1

**Contact Us**    **Copyright**    **About MorphBank**

Figure 21    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. 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 (Fig. 21, 22). 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 id 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

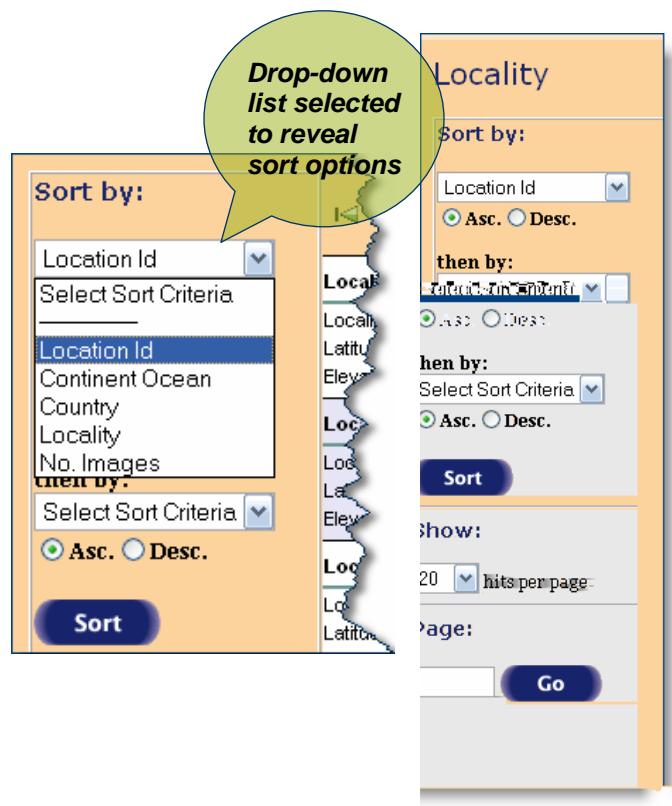


Figure 22 Locality Sort Options

#### 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** go button (Fig. 21, 22). 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.)

As located in Fig. 21, selecting the camera will display all images associated with that view regardless of their taxonomic value (Fig. 23) or selecting the information icon will display detailed information about that locality (as in Fig. 23). 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 (Fig. 21).

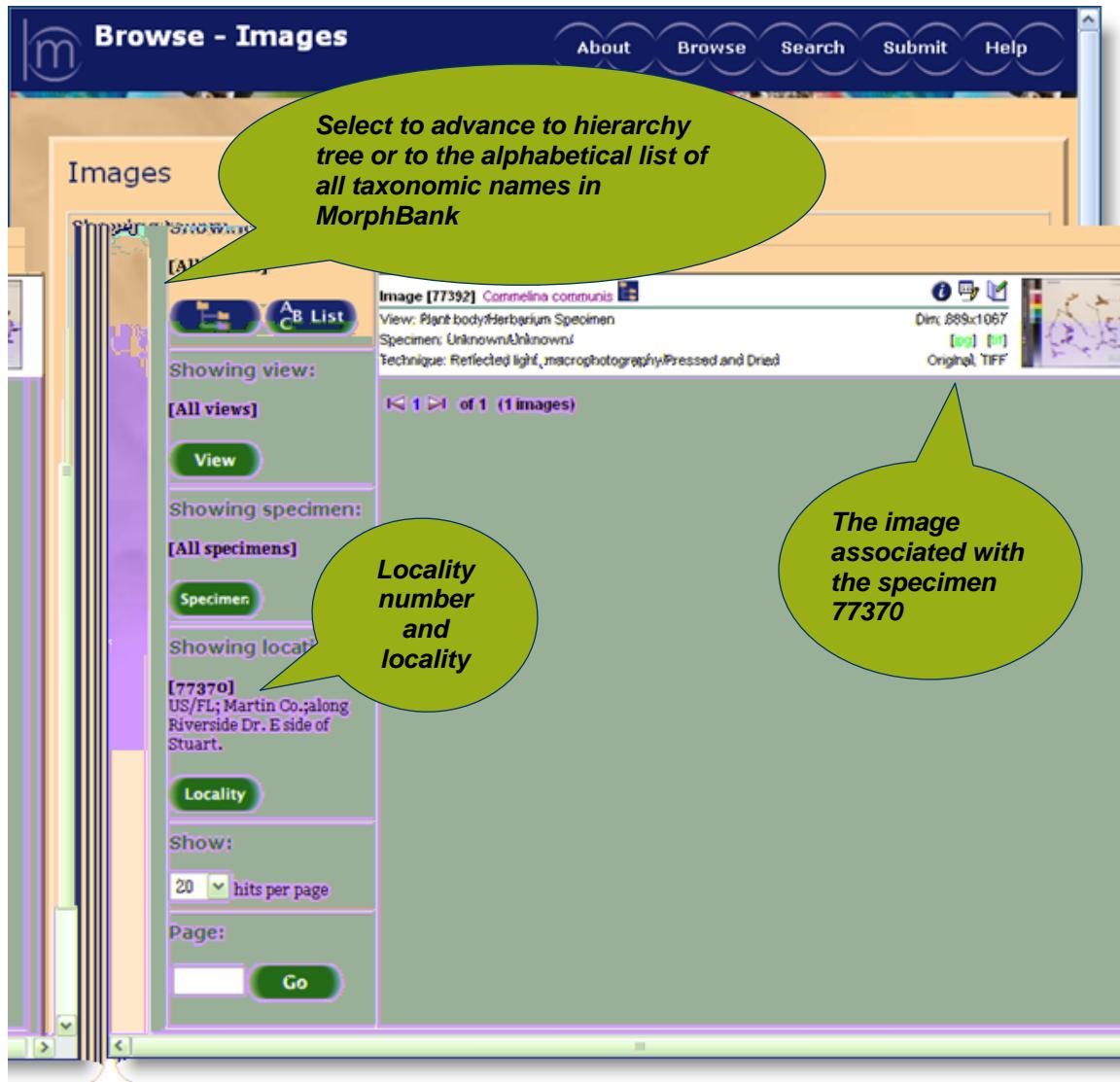
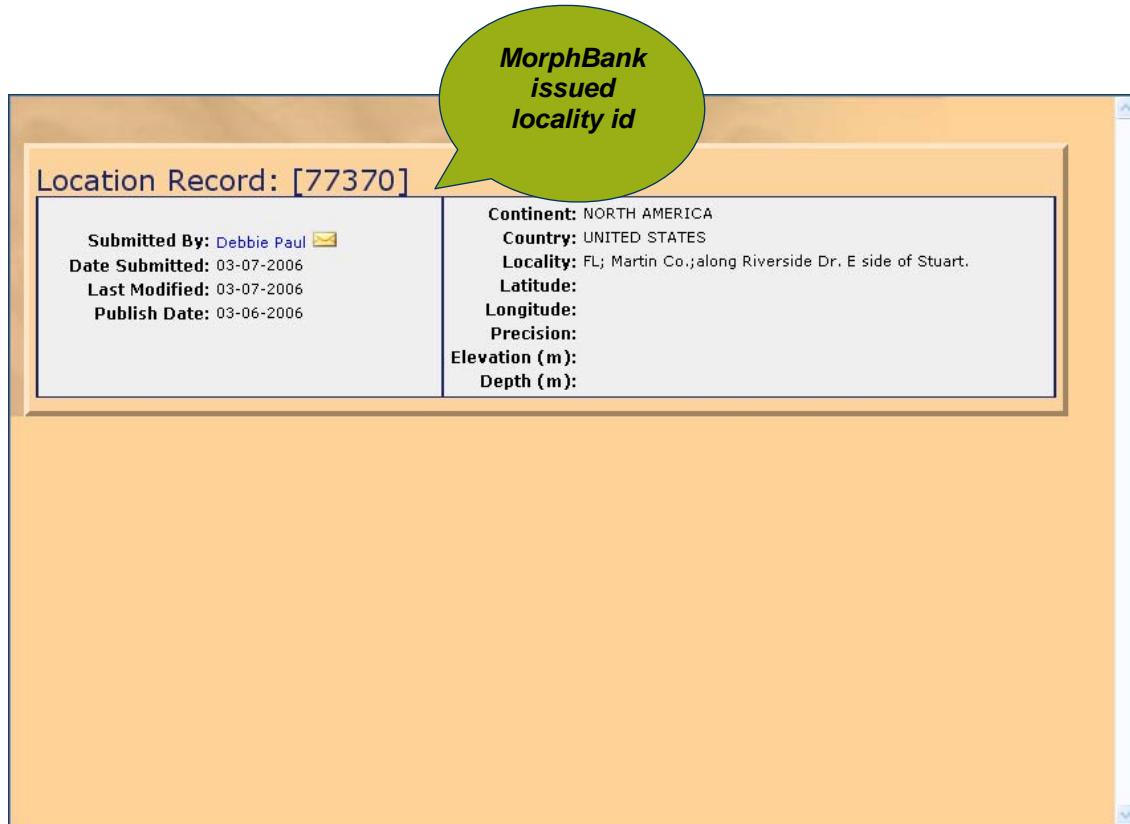


Figure 23 Example of Browse-Images

## Example: Locality Record Page

Displayed from the information  icon, **browse-locality** page (Fig. 21)  
This page displays Information unique to this locality record.



MorphBank  
issued  
locality id

Location Record: [77370]

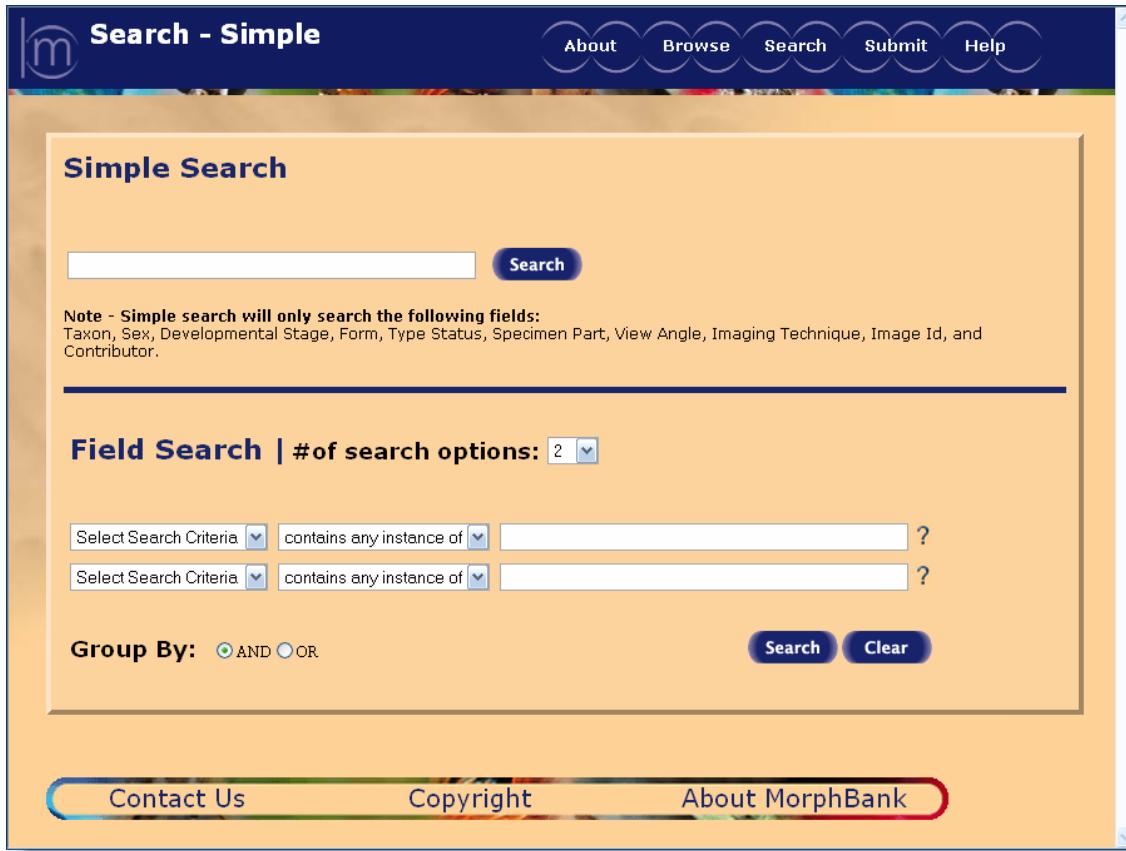
<b>Submitted By:</b> Debbie Paul 	<b>Continent:</b> NORTH AMERICA
<b>Date Submitted:</b> 03-07-2006	<b>Country:</b> UNITED STATES
<b>Last Modified:</b> 03-07-2006	<b>Locality:</b> FL; Martin Co.; along Riverside Dr. E side of Stuart.
<b>Publish Date:</b> 03-06-2006	<b>Latitude:</b>
	<b>Longitude:</b>
	<b>Precision:</b>
	<b>Elevation (m):</b>
	<b>Depth (m):</b>

Figure 24 Example of Location Record

# Search

The search option in MorphBank is designed for users who desire a fast and efficient method of information discovery (Fig. 25). Search does not require user login, however, logged in users have varied tools accessible within browse based on user privileges.

To search, users either enter a keyword to scan a predefined set of fields in the **simple search** option or select the fields to be searched in the **field search** option.



The screenshot shows the MorphBank search interface. At the top, there's a navigation bar with links for About, Browse, Search, Submit, and Help. Below the navigation bar, there are two main search options:

- Simple Search:** A text input field followed by a "Search" button. A note below it states: "Note - Simple search will only search the following fields: Taxon, Sex, Developmental Stage, Form, Type Status, Specimen Part, View Angle, Imaging Technique, Image Id, and Contributor."
- Field Search:** A dropdown menu set to "2". It contains two search criteria fields, each with a "Select Search Criteria" dropdown, a "contains any instance of" dropdown, and a text input field. There are also question mark icons and "Search" and "Clear" buttons. Below this, there's a "Group By:" section with radio buttons for "AND" and "OR".

At the bottom, there are links for Contact Us, Copyright, and About MorphBank.

Figure 25 Search

## Simple Search

With this option, a search keyword(s) is entered in by the user. (More than one word needs to be separated by a space). When **Search** is selected, a search of the Taxon, Sex, Developmental Stage, Form, Type Status, Specimen Part, View Angle, Imaging Technique, Image Id, and Contributor fields is performed. This type of search is not case sensitive. All matches to the simple search will appear as a list of associated data and image thumbnails (Fig. 23). Proper spelling will assure the best search however, typing a partial word, will result in a corresponding search containing those letters. (I.e. when searching for 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.)

**Results of  
simple  
search  
using the  
key word  
**Braconidae****

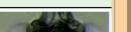
**Search Results**

**Searching For:** "Braconidae"

**Back to Search**
About
Browse
Search
Submit
Help

**Show:** 20 **hits per page**

**Page:**

Image [76408] <i>Alabagrus albispina</i>	View: Head/Anterior	Dim: 1351x1019
	Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	<a href="#">[jpg]</a> <a href="#">[tif]</a> Original: TIFF
	View: Body/Dorsal Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	<a href="#">[jpg]</a> <a href="#">[tif]</a> Original: TIFF
	View: Head/Dorsal Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	<a href="#">[jpg]</a> <a href="#">[tif]</a> Original: TIFF
	View: Mesosoma/Dorsal Specimen: Female/Adult/Indeterminate Technique: Auto-Montage/No preparation	<a href="#">[jpg]</a> <a href="#">[tif]</a> Original: TIFF
	View: Metasoma/Dorsal Specimen: Female/Adult/Indeterminate	<a href="#">[jpg]</a> <a href="#">[tif]</a>

**Figure 26 Simple Search Results**

### 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.)

Any thumbnail image can be reproduced in its original format by selecting the **[jpg] or [tif]** option. (Fig. 15)

Selecting the information icon  will display detailed information about that specimen (Fig 26). Selecting the tree of life symbol  will list the taxonomic hierarchy of the Taxon name (as in Fig. 6). Other options such as annotate  and edit  will be available only for those authorized through login permissions.

## Example: Image Record Page

Displayed from the information  icon, **search-simple** page (Fig. 26)  
 This page displays Information unique to this image.

**Image record: [76408] *Alabagrus albispina***

<p>Submitted by: Michael Sharkey        Submitted date: 07-20-2004        Published date: 07-20-2004</p> <p>Access #: 5565        Magnification: NULL        Dimension (px): 1019x1351        Resolution (PPI): 72        Submitted as: TIFF</p> <p>View id: 75513        Specimen part: [56] - Head        Angle: [35] - Anterior        Technique: [25] - Auto-Montage        Preparation: [77344] - No preparation</p> <p>Download: <a href="#">tiff</a> (3.95 MB)  <a href="#">jpeg</a> (182.76 KB)</p>	 <p>MorphBank issued image id</p>
<p><b>Specimen</b></p> <p>Specimen id: 75543        Basis of record: [S] - Specimen        Sex: [97] - Female        Form: [104] - Indeterminate        Stage: [95] - Adult        Collector: Michael Sharkey        Date collected: 00-00-0000</p>	<p><b>Location</b></p> <p>Location id: 75542        Continent ocean: [00] - UNKNOWN        Country: [00] - UNKNOWN        Locality:        Latitude:        Longitude:        Elevation (m):</p>
<p><b>Determination</b></p> <p>Class: Insecta        Order: Hymenoptera        Family: Braconidae        Genus: Alabagrus        Species: <i>Alabagrus albispina</i></p>	<p><b>Determination annotations</b></p> <p>blue font is selectable to reveal additional information</p>
<p><b>Annotations</b></p> <p>This image has no annotations</p>	

Figure 27 Example of Image Record

## Field Search

In this option, a user will select the number of fields (up to 10) they wish to search. The field search screen will expand to accommodate the number of search options selected. Any of the field search rows that were requested but left blank, will not affect the search outcome.

**Column 1** contains the fields that can be searched (search criteria) which are:

- Contributor: The person who provides the data
- Specimen id: Unique MorphBank issued id for the specimen
- Publication author: The person who published the image. On occasion this person may be different than the contributor.
- Sex: present for specimens when known or applicable
- Form: specimens may have a form of parthenogenetic, indeterminate, ovulate cone, unknown, etc.
- Developmental stage: developmental growth phase of specimen
- Type status: specimen that is universally accepted as being a clear example of its species (i.e. holotype, paratype, etc.).
- Taxon name: the list of scientific names associated with the specimen and/or images
- Imaging technique: technique used to capture photo such as auto-montage, transmitted light; bright field, etc.
- Specimen part: pertains to a view that contains a portion of a specimen
- View angle: location of the camera with respect to the specimen for photographing
- Image id: Unique MorphBank issued id for the image

**Column 1**

**Column 2**

**Column 3**

**Field Search | #of search options: 2**

Select Search Criteria  contains any instance of  ?

Select Search Criteria  contains any instance of  ?

**Group By:**  AND  OR

**Search** **Clear**

Figure 28 Search-Simple Partial Page

In **column 2**, the user will choose the selection criteria. Selection criteria varies based on the search criteria selected, but examples include equal, not equal, greater than, less than, less than or equal, and greater than or equal. For some criteria, the only options are to match or not match.

The user will then either enter or select the matching information from **column 3**. Fields for which there are limited data entries (such as sex and form) will provide a drop down box for selection choices. For other fields (such as publication author or specimen part) the user will type in the text to be matched.

Finally, a **group by** choice of and/or is offered. By selecting **AND** the results must match “true” for any data returned. For example, if a user requests the sex field to be equal to female and type status to be equal to holotype, only images that match both criteria will be returned. By selecting **OR**, the data that matched either criteria (female or holotype) would be returned.

## Example: On-Screen Help Page

For onscreen instruction select the help ? icon (as located in Fig. 25, 28)

### Directions for Search.

- Use the first drop-down box to select which category to search (i.e. Taxon Name, Specimen Part etc).
- Use the second drop-down box to select the BOOL or mathematical operator (i.e. "=" "<" ">" etc)
- Use the last column to either select from a drop-down (if applicable) or type in search criteria.
- Click on "Search Button"

[Close Window](#)

Figure 29 Example of On-screen Help for Field Search

# Submit

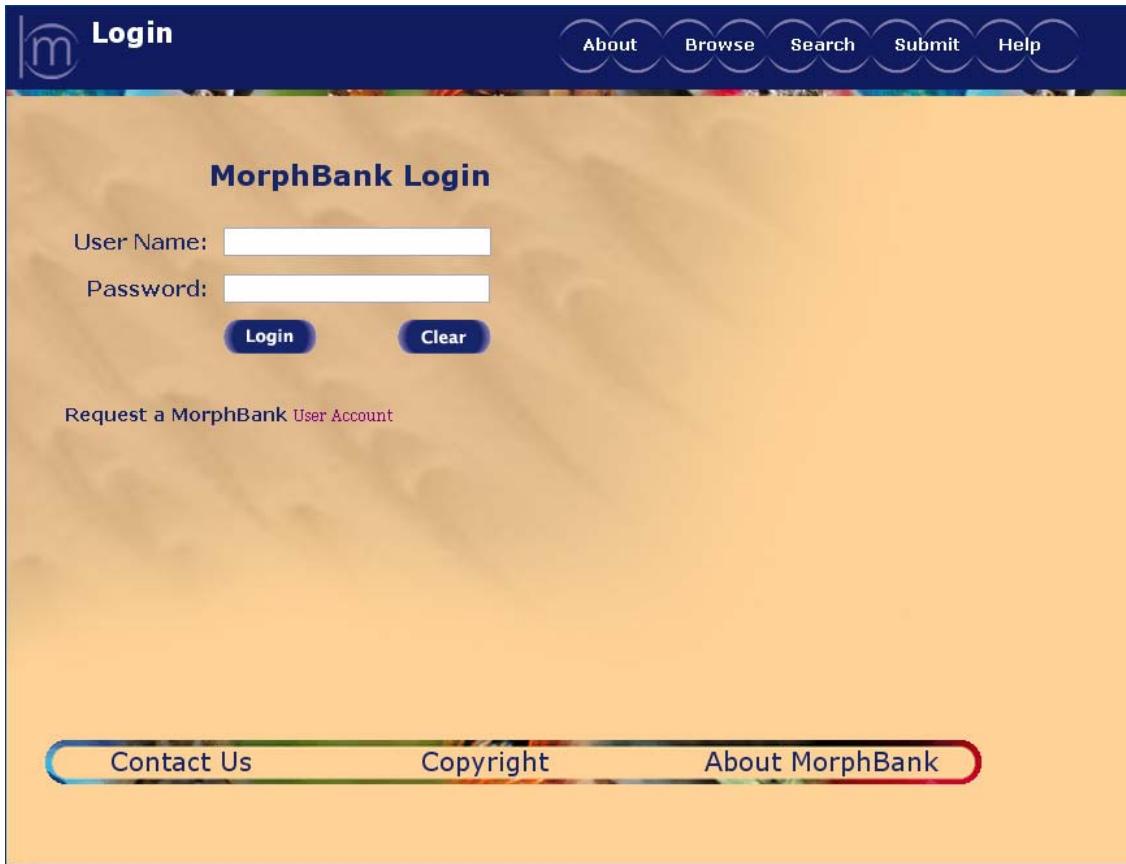
Before submitting data into MorphBank, users must have available each of the following:

- Valid MorphBank user name and password (obtained through the login screen or by contacting the MorphBank admin. group at [mbadmin@scs.fsu.edu](mailto:mbadmin@scs.fsu.edu)).
- Have available information about the locality where the specimen was collected to include the place/country/province/region.
- 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 and locality.
- 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.
- Image file to be uploaded (bitmap [.bmp], joint photographic experts group [.jpeg,. jpg], tag information file format [.tiff]), specimen to which the image belongs, and its view.

**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 user name and password. Every user that submits information to MorphBank must log into the system first.



The screenshot shows the MorphBank login interface. At the top, there's a dark blue header bar with the MorphBank logo on the left and five circular menu items labeled "About", "Browse", "Search", "Submit", and "Help". Below the header is a light orange background area containing the "MorphBank Login" title. On the left side of this area, there are two input fields: "User Name:" and "Password:", each with a corresponding text input box. To the right of these fields are two blue buttons: "Login" and "Clear". At the bottom left of the orange area, there's a link "Request a MorphBank User Account". Along the bottom edge of the orange area, there are three red-outlined buttons: "Contact Us", "Copyright", and "About MorphBank".

Figure 30 Login

## Login: Username and Password

To obtain the user name and password select the ***user account*** link (Fig. 30) to access a MorphBank user account application and instructions or contact the MorphBank admin. group at [mbadmin@scs.fsu.edu](mailto:mbadmin@scs.fsu.edu).



**User Account Application**

Please print or type this information very important. See the general page. This application may be mailed to: MorphBank Research Group, School of Computational Sciences, Mail Code 4120, FLSU mb

Name: \_\_\_\_\_  
First Name: \_\_\_\_\_ M.I. \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_  
Country: \_\_\_\_\_  
Email Address: \_\_\_\_\_  
Institute or Affiliation: \_\_\_\_\_  
Requested User-Name: \_\_\_\_\_  
Requested Initial Password: \_\_\_\_\_  
Phone Number: \_\_\_\_\_  
Privileges (taxonomic areas): \_\_\_\_\_  
Primary Taxonomic Area: \_\_\_\_\_  
Secondary Taxonomic Area: \_\_\_\_\_  
Note: Attach a current resume/expertise: \_\_\_\_\_

Figure 31 User Account Application



## Instructions

**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.

**Address:** Enter the mailing address where you wish to receive hard copy correspondence from MorphBank.

**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.

**Institute or Affiliation:** Enter the university, museum, or other institute to which you belong.

**User Name and Password:** You can request a username. If there is a duplicate name in the system, a suitable name similar to the one you requested will be generated and emailed to the address on this form.

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

**Privilege Taxonomic Area:** Enter the taxonomic name that best represents your overall area of expertise. For instance, if you study primarily hymenoptera you might want to enter the class Insecta as your Privilege Taxonomic Area. This is a very important since the Privilege Taxonomic area is used in assignment of groups and access privileges.

**Primary Taxonomic Area:** Enter the taxonomic name that best represents your particular area of expertise or interest. If you study manatees the you would enter the scientific name of Trichechus manatus manatus.

**Secondary Taxonomic Area:** If your area of research requires that you maintain an expertise in several different areas then you might want to indicate this by reference an alternate area of expertise.

Note: Once the account has been generated, you will receive notification

~~An e-mail message will be sent to you with instructions on how to change your password.~~

**Figure 32 Instruction for User Account Application**

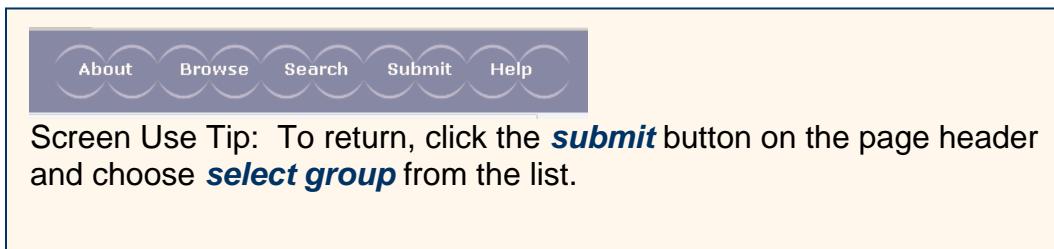
## Select Groups

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



Figure 33 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 **submit** 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 or upload data to their MorphBank group.

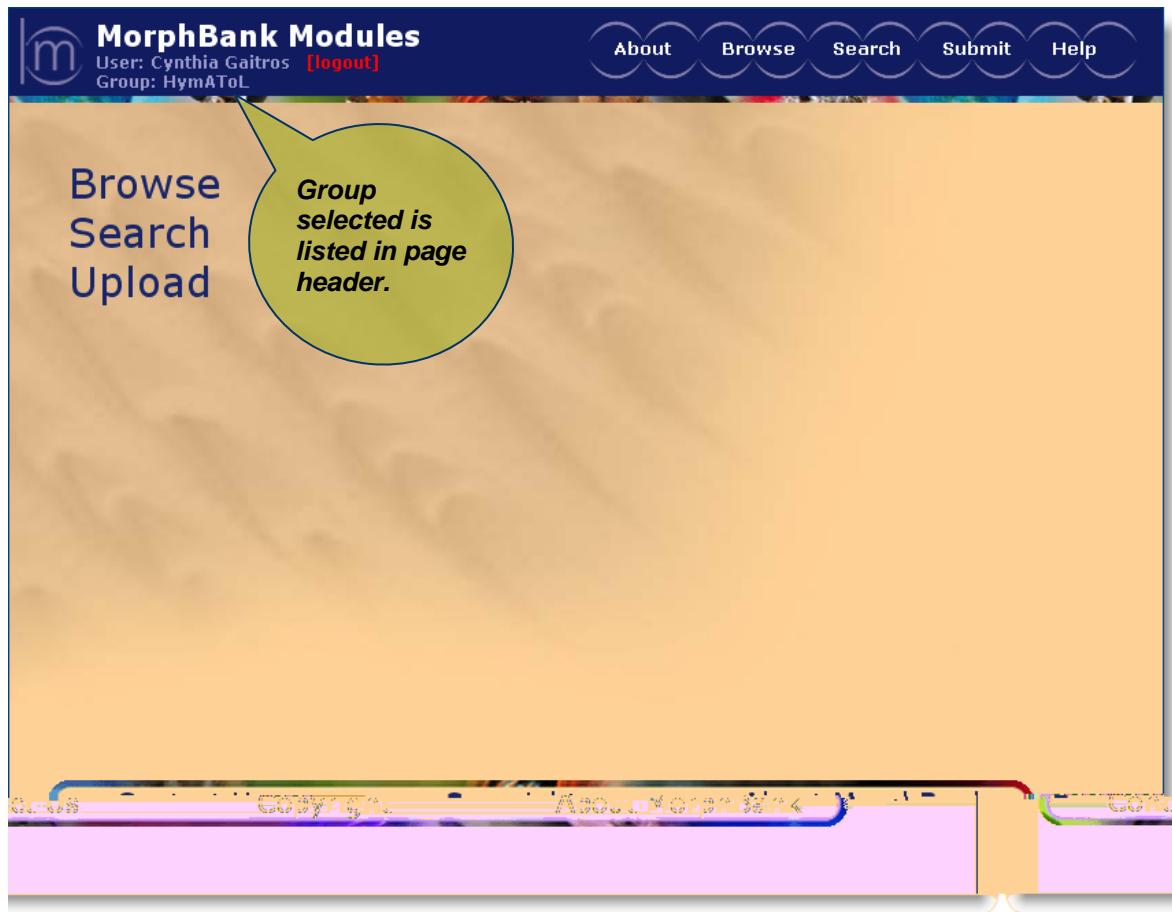


Figure 34 MorphBank Modules

**Note: The instructions for upload are covered here in MorphBank modules. For direction in the use of browse or search return to appropriate section in this manual.**

## Upload

After selecting **upload**, the screen reflects choices of locality, specimen, view, or image.

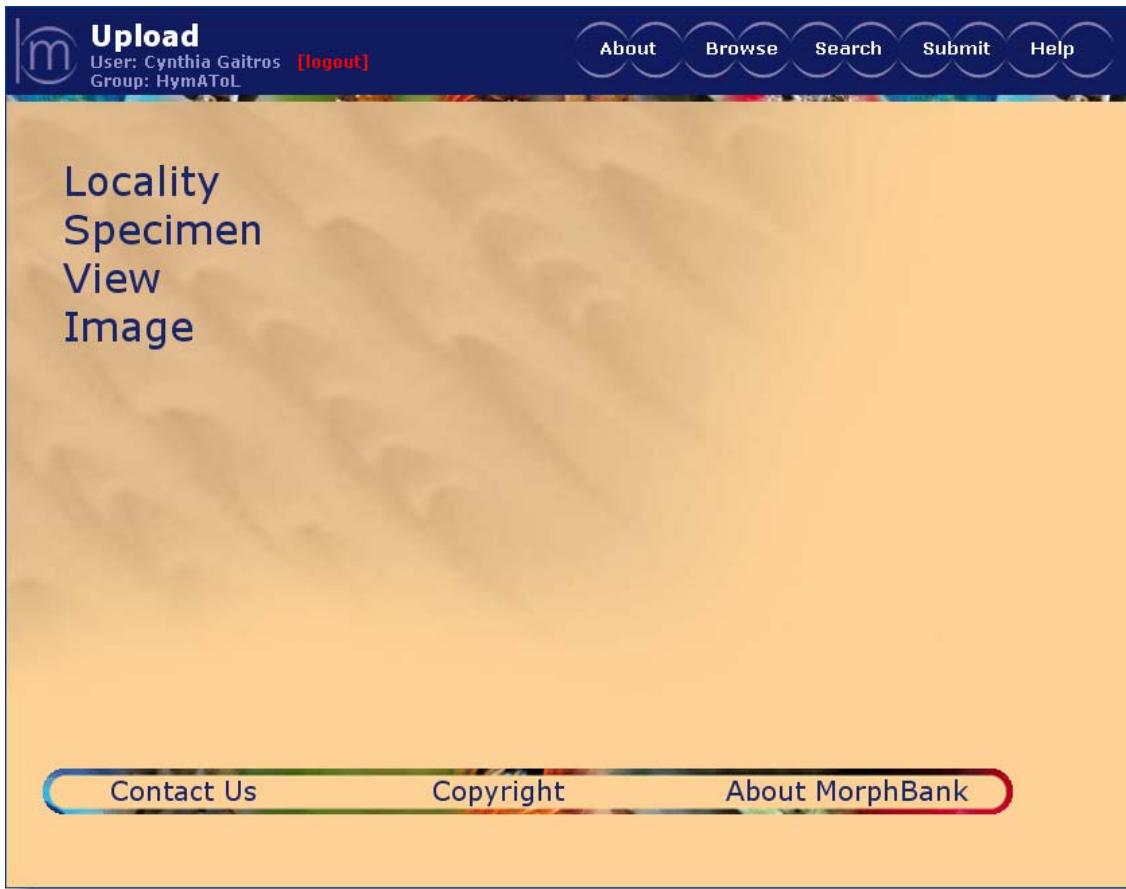


Figure 35 Upload

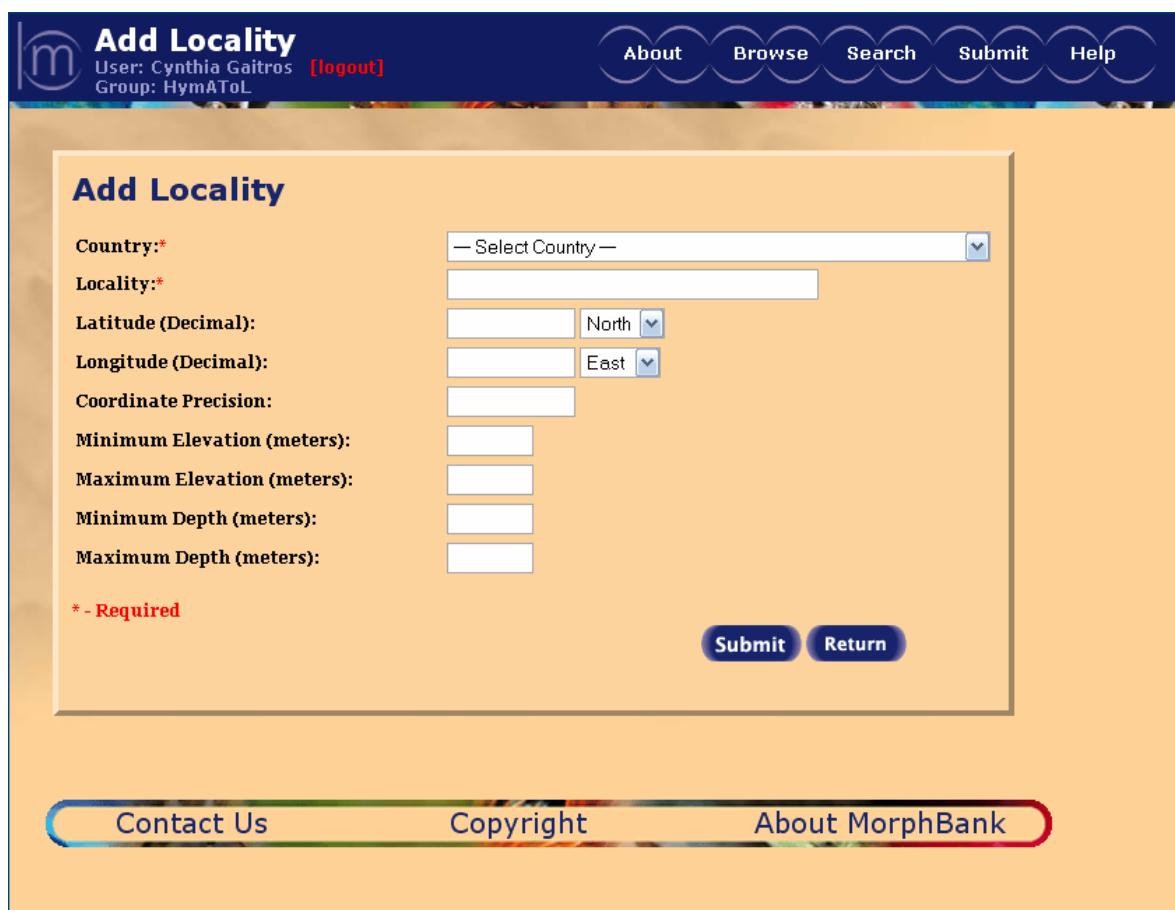
**Note: The person logged in will be the name of the person that displays in the “submitted by” section of records, i.e. Fig 20, 24, 27.**

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: 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' page from the MorphBank website. At the top, there's a navigation bar with a logo, the title 'Add Locality', and user information ('User: Cynthia Gaitros' and 'Group: HymAToL'). To the right of the title are links for 'About', 'Browse', 'Search', 'Submit', and 'Help'. Below the navigation is a large form area with a light orange background. The form fields include:

- Country: A dropdown menu labeled '— Select Country —'.
- Locality: An input field.
- Latitude (Decimal): An input field with a dropdown menu showing 'North'.
- Longitude (Decimal): An input field with a dropdown menu showing 'East'.
- Coordinate Precision: An input field.
- Minimum Elevation (meters): An input field.
- Maximum Elevation (meters): An input field.
- Minimum Depth (meters): An input field.
- Maximum Depth (meters): An input field.

Below the form, a note says '\* - Required'. At the bottom right of the form area are 'Submit' and 'Return' buttons. At the very bottom of the page, there's a footer with three links: 'Contact Us', 'Copyright', and 'About MorphBank'.

Figure 36 Add Locality

**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 apposed to the exact area within that county where the specimen was collected).**

**Withheld data can be noted on the “specimen” page, “notes” section along contact information for interested researchers to access further information.**

**m 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](mailto: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).

**m 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.

**m Latitude**

Enter the latitude of the locality. Use the decimal format followed by north/south from the drop-down 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/> ).

**m Longitude**

Enter the longitude of the locality. Use the decimal format followed by east/west from the drop-down 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.

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 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” upload form.**

## Upload: 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.

m **Add Specimen**

User: Cynthia Gaitros [\[logout\]](#)
About
Browse
Search
Submit
Help

### Add Specimen

Basis of Record *	<input type="button" value="— Select from the following —"/>
Sex*	<input type="button" value="— Select Sex —"/> +
Form*	<input type="button" value="— Select Form —"/> +
Developmental Stage*	<input type="button" value="— Select Developmental Stage —"/> +
Type Status*	<input type="button" value="— Select TypeStatus —"/>
Preparation Type	<input type="text"/>
Number of Individuals	<input type="text"/>
Determination*	<input type="text"/> ✓
Determined By	<input type="text"/>
Date Determined (YYYY/MM/DD)	<input type="text"/>
Determination Notes	<input type="text"/>
Institution Code	<input type="text"/>
Collection Code	<input type="text"/>
Catalog Number	<input type="text"/>
Previous Catalog Number	<input type="text"/>
Related Catalog Item	<input type="text"/>
Relationship Type	<input type="text"/>
Collection Number	<input type="text"/>
Collector(s) Name*	<input type="text"/>
Date Collected(YYYY/MM/DD)*	<input type="text"/>
Locality*	<input type="text"/> ✓ +
Notes	<input type="text"/>

\* - Required

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

Figure 37 Add Specimen

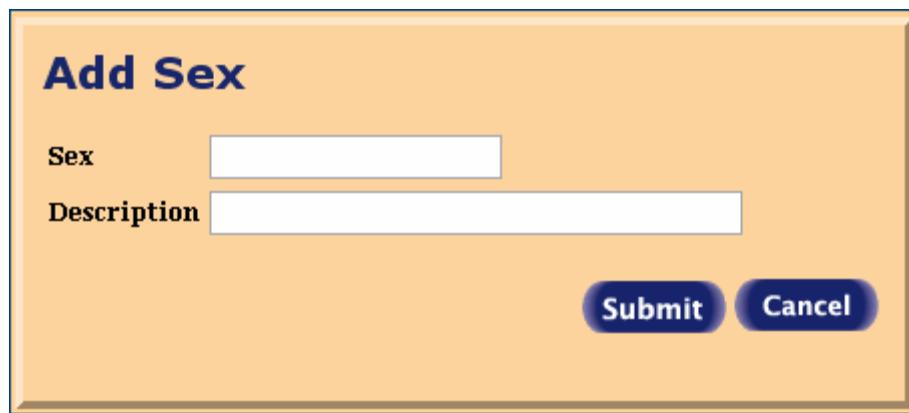
## Basis of Record (Required)

Choose one of the options from the dropdown 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](mailto:mbadmin@scs.fsu.edu).

## Sex (Required)

Choose one of the options from the dropdown list. The list contains a set of terms based on community consensus: Male, Female, Hermaphrodite, Indeterminate (if the specimen was examined but the sex could not be determined), Unknown (if the specimen was not examined for its sex), Transitional (if the specimen is between sexes, like sequential hermaphrodites). The list of options is based on the Darwin Core standard.

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](mailto:mbadmin@scs.fsu.edu).



The screenshot shows a modal dialog box titled "Add Sex". It contains two input fields: "Sex" and "Description", each with a text input box. At the bottom right are two buttons: "Submit" and "Cancel".

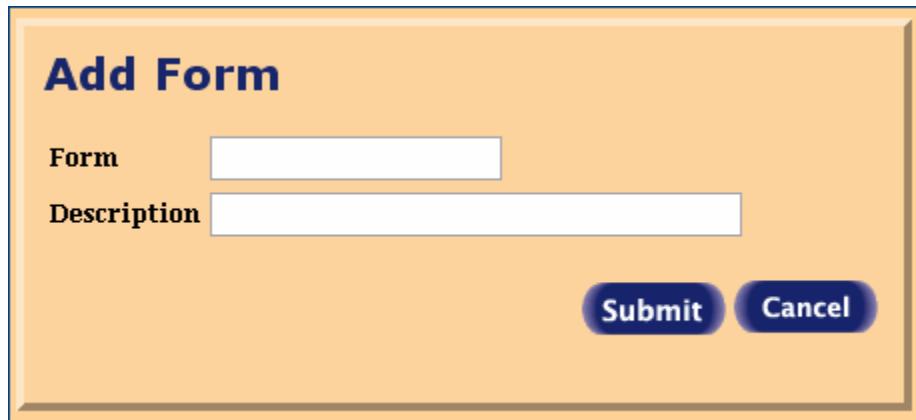
Figure 38 Add Sex Accessed Through 

Enter the appropriate text on the **add sex** page (Fig. 38) 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 dropdown 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 dropdown list, a new morphotype 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](mailto:mbadmin@scs.fsu.edu).



The screenshot shows a modal dialog box titled "Add Form". Inside the dialog, there are two text input fields: one labeled "Form" and another labeled "Description". At the bottom right of the dialog are two buttons: "Submit" and "Cancel".

Figure 39 Add Form Accessed Through 

Enter the appropriate text on the **add form** page (Fig. 39) 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 form from the dropdown list.

### Developmental Stage (Required)

Choose the developmental stage of the specimen from the dropdown 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](mailto:mbadmin@scs.fsu.edu).

## Add Developmental Stage

Developmental Stage

Description

Figure 40 Add Developmental Stage Accessed Through +

Enter the appropriate text on the **add developmental stage** page (Fig. 40) 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 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](mailto:mbadmin@scs.fsu.edu) if some of your specimens require more than a single type designation or determination.

### **Preparation Type**

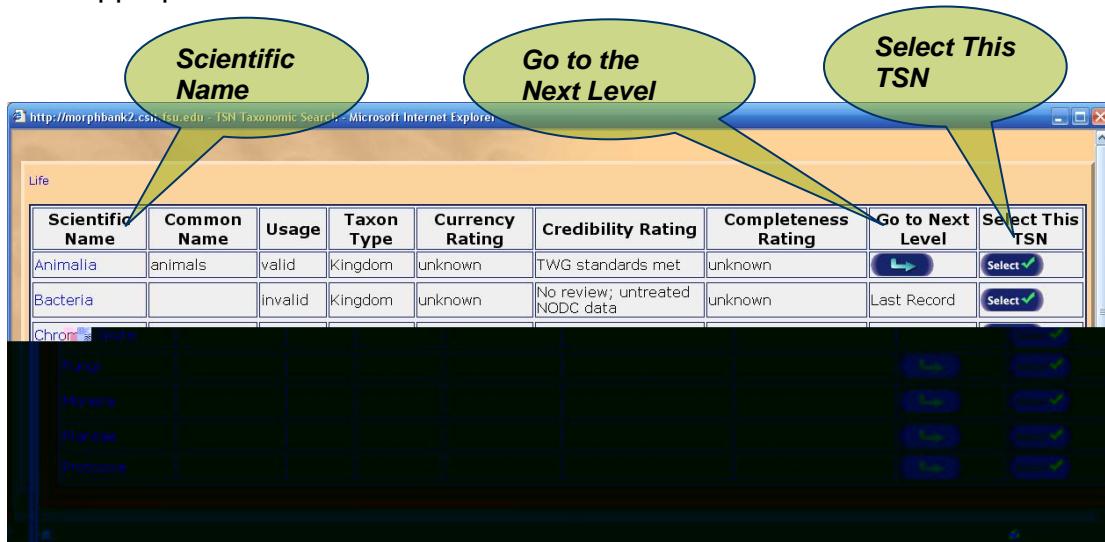
Enter the type of specimen preparation, if applicable. This is the preparation of the whole specimen, before incorporation into the collection. Examples include “Pressed and Dried” and “70% ethanol”.

### **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 (Required)**

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 41 Taxonomic Selection**

### **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. *This category pertains mainly to museums or personal collections.*

### **Collection Code**

Enter a unique alphanumeric value which identifies the collection to which the specimen belongs. *This category pertains mainly to museums or personal collections.*

## Catalog Number

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

## Previous Catalog Number

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

## Related Catalog Item

Enter a fully qualified identifier of a related catalog item (a reference to another specimen). A fully qualified identifier consists of Institution Code, Collection Code and Catalog Number, with a space separating each of the three sub elements. *This category pertains mainly to museum or personal collections.*

## 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. *This category pertains mainly to museum or personal collections.*

## 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. *This category pertains mainly to museum or personal collections.*

## 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 names need to be selected ✓ from **locality** selection screen.

### Locality

**Sort by:**  
 Location Id ▼  
 Asc.  Desc.  
  
**then by:**  
 Select Sort Criteria ▼  
 Asc.  Desc.  
  
**then by:**  
 Select Sort Criteria ▼  
 Asc.  Desc.  
  
Sort

1 ◀ 2 3 4 5 6 7 8 9 10 ▶ ▷ I of 10 of 189

Locality [103] NORTH AMERICA / UNITED STATES	No. Images: 31924
Locality: Laboratory - FSU Latitude/Longitude: / Elevation (m):	(i) (✓)
Locality [63996] ASIA / TURKEY	No. Images: 1
Locality: Sac Gecidi (2000 m) Agri Latitude/Longitude: / Elevation (m) : 2000	(i) (✓)
Locality [63997] ASIA / TAJIKISTAN	No. Images: 1
Locality: Safedou (2500 m) Latitude/Longitude: / Elevation (m) : 2500	(i) (✓)
Locality [63998] AFRICA / MOROCCO	No. Images: 1
Locality: 10 km N Tizi-n-Test (1700m) Marrakech Latitude/Longitude: / Elevation (m) : 1700	(i) (✓)
Locality [63999] ASIA / IRAN, ISLAMIC REPUBLIC OF	No. Images: 1
Locality: 25 km N Torbat-e-Heydariyeh (1700-1800 m) Khorasan Latitude/Longitude: / Elevation (m) : 1700 - 1800	(i) (✓)
Locality [64000] ASIA / IRAN, ISLAMIC REPUBLIC OF	(i) (✓)

Figure 42 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  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 was not on the **locality** screen, close the screen and select the add icon  from the **add specimen** screen (Fig 37). This will direct the user to **add locality** (Fig. 36). (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 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. Examples: Specimen notes might state that data was withheld to shield the locality of protected/ sensitive specimens and include contact information for interested researchers to access further information. Specimen notes might also include voucher label information (i.e. DNA, anatomical, etc.) about a specimen or other information such as the duration of the collection/trapping sessions noting a range of dates the process took place.

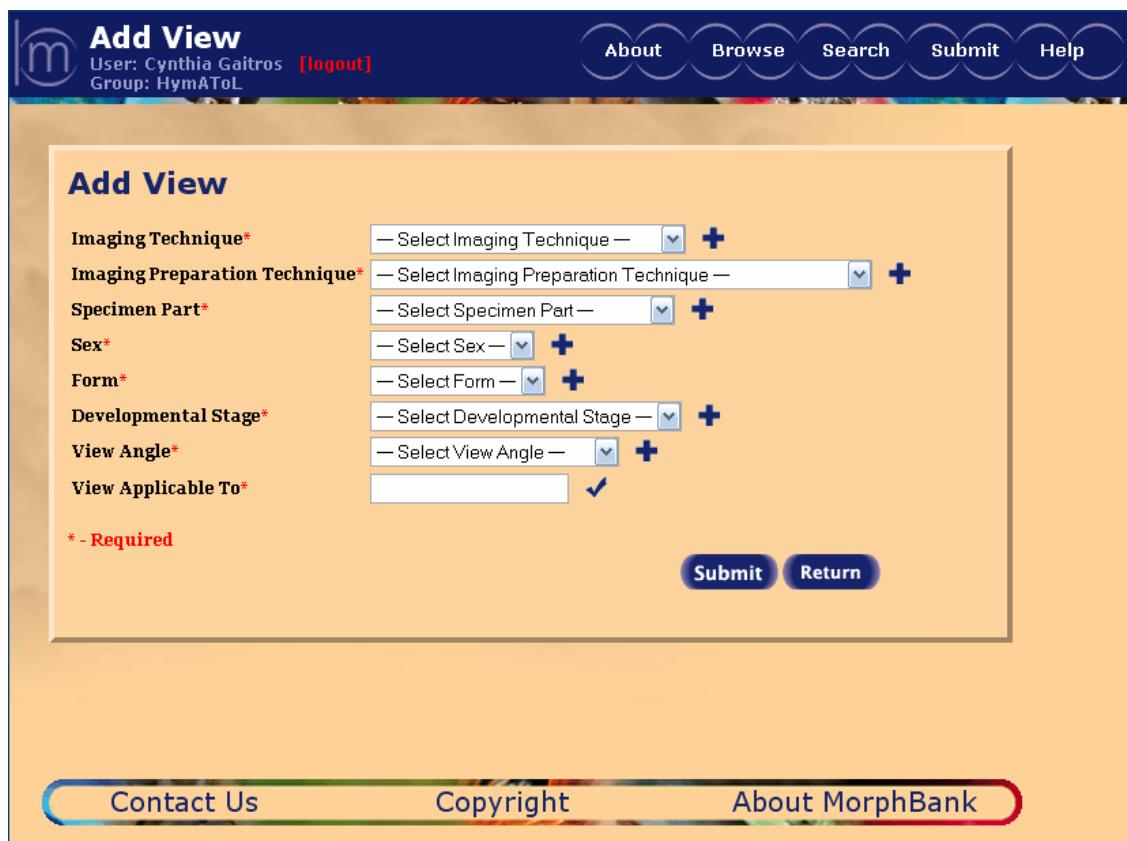
When the **add specimen** form has been completed, submit **Submit** to complete the add specimen process. A message will confirm that **you have successfully added a specimen**. From this point the user can continue to add additional specimens or return to the upload screen.

**Note:** When the “add specimen” screen is activated from the “add image” upload screen (Fig. 52) no message will be seen. Instead, the new specimen will appear in the appropriate field on the “add image” upload form.

## Upload: 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.



The screenshot shows the 'Add View' page of the MorphBank website. At the top, there's a navigation bar with links for 'About', 'Browse', 'Search', 'Submit', and 'Help'. Below the navigation is a sub-navigation bar with 'Add View', 'User: Cynthia Gaitros [logout]', and 'Group: HymAToL'. The main content area has a title 'Add View' and a form with the following fields:

Imaging Technique*	— Select Imaging Technique —	+
Imaging Preparation Technique*	— Select Imaging Preparation Technique —	+
Specimen Part*	— Select Specimen Part —	+
Sex*	— Select Sex —	+
Form*	— Select Form —	+
Developmental Stage*	— Select Developmental Stage —	+
View Angle*	— Select View Angle —	+
View Applicable To*		✓

Below the form, a note says '\* - Required'. At the bottom right are 'Submit' and 'Return' buttons. At the very bottom of the page are links for 'Contact Us', 'Copyright', and 'About MorphBank'.

Figure 43 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, 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](mailto:mbadmin@scs.fsu.edu).

## Add Imaging Technique

Imaging Technique/Name

Description

**Submit** **Cancel**

Figure 44 Add Imaging Technique Accessed Through 

Enter the appropriate text on the **add Imaging Technique** page (Fig. 44) 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 from the drop-down list, the imaging preparation technique used for the view. If the image preparation technique used is not in the list, you can add the value by 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](mailto:mbadmin@scs.fsu.edu).

## Add Imaging Preparation Technique

Imaging Preparation Name

Description

**Submit** **Cancel**

Figure 45 Add Imaging Preparation Technique Accessed Through 

Enter the appropriate text on the **add imaging preparation technique** page (Fig. 45) 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 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](mailto:mbadmin@scs.fsu.edu).

## Add Specimen Part

Specimen Part

Description

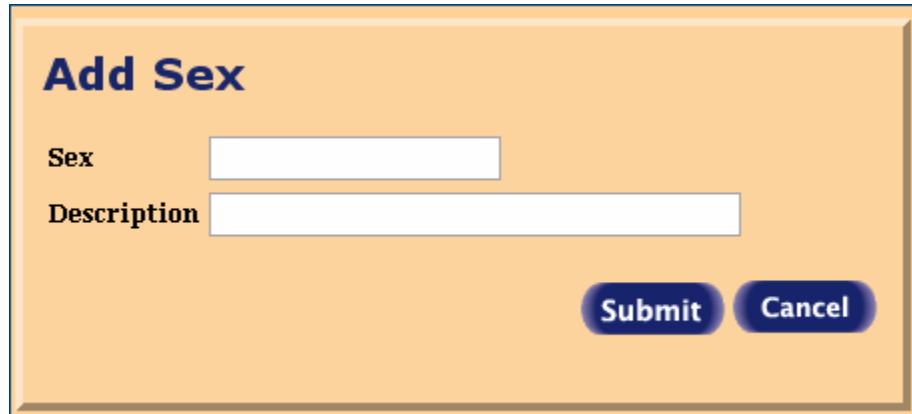
**Submit** **Cancel**

Figure 46 Add Specimen Part Accessed Through 

Enter the appropriate text on the **add specimen part** page (Fig. 46) 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 you choose should be consistent with the sex of the specimens to which you plan to apply this view. You may also choose unknown if the view is applicable to both sexes, in which case you can apply the view to images of specimens of any sex. Examples include male, female, unknown, and indeterminate. If the appropriate sex 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](mailto:mbadmin@scs.fsu.edu).



The screenshot shows a modal dialog box titled "Add Sex". Inside the box, there are two input fields: one for "Sex" and one for "Description". Below these fields are two buttons: "Submit" and "Cancel". The entire dialog box is set against a light orange background.

Figure 47 Add Sex Accessed Through 

Enter the appropriate text on the **add sex** page (Fig. 47) 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 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](mailto:mbadmin@scs.fsu.edu).



**Figure 48 Add Form Accessed Through +**

Enter the appropriate text on the **add form** page (Fig. 45) 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](mailto:mbadmin@scs.fsu.edu).

## Add Developmental Stage

Developmental Stage

Description

**Submit** **Cancel**

Figure 49 Add Developmental Stage Accessed Through 

Enter the appropriate text on the **add developmental stage** page (Fig. 49) 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 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](mailto:mbadmin@scs.fsu.edu).



The screenshot shows a modal dialog box titled "Add View Angle". It contains two input fields: "View Angle" and "Description", both represented by white text input boxes. Below the input fields are two blue rounded rectangular buttons labeled "Submit" and "Cancel". The background of the dialog is a light orange color.

Figure 50 Add View Angle Accessed Through 

Enter the appropriate text 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 Anamalia. 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.

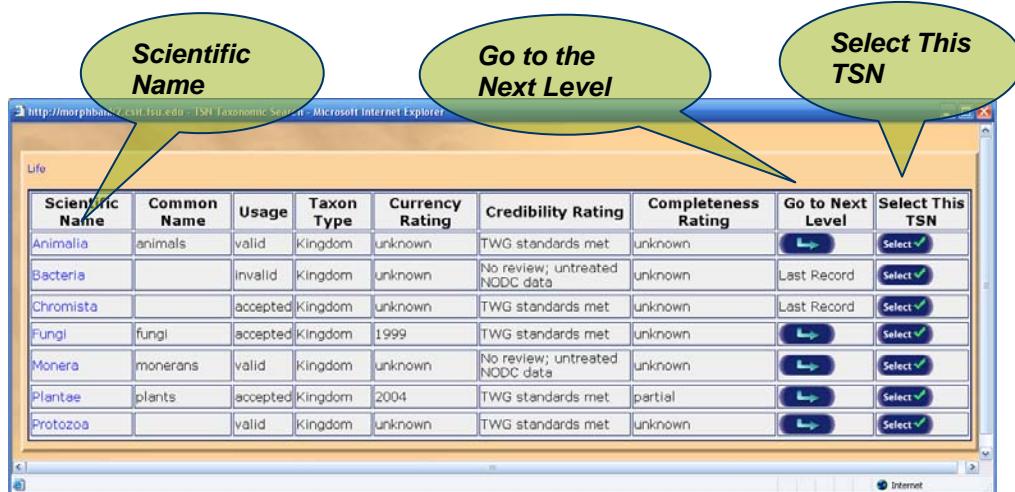


Figure 51 Taxonomic Selection

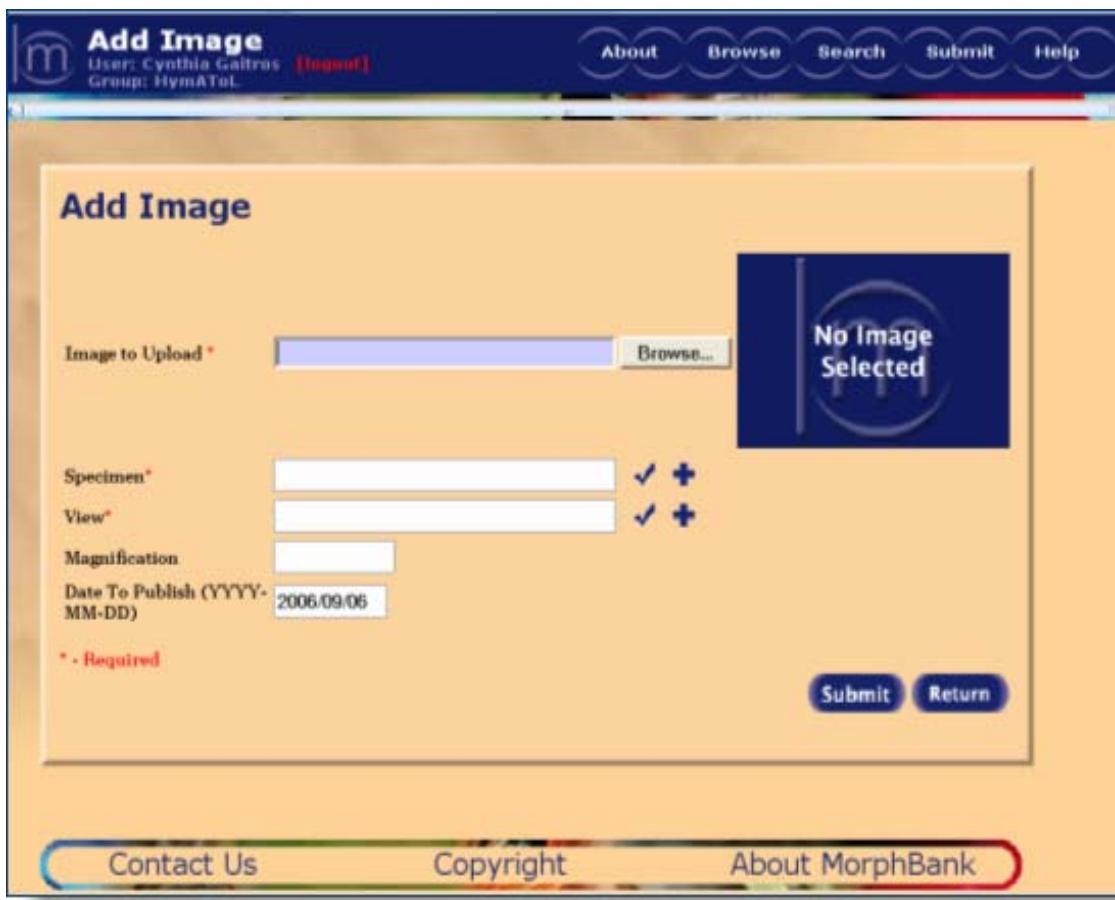
When the add view form has been completed, submit  to complete the add view process. A message will confirm that ***you have successfully added a view***

## Upload: 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]).

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.



The screenshot shows the 'Add Image' interface. At the top, there's a navigation bar with links for About, Browse, Search, Submit, and Help. Below that is a sub-navigation bar with links for Contact Us, Copyright, and About MorphBank. The main content area has a yellow background and contains the following fields:

- Image to Upload \***: A file input field with a 'Browse...' button. To its right is a dark blue square button with white text that says "No Image Selected".
- Specimen\***: A text input field with a checkmark icon and a plus sign icon to its right.
- View\***: A text input field with a checkmark icon and a plus sign icon to its right.
- Magnification**: A text input field.
- Date To Publish (YYYY-MM-DD)**: A text input field containing the value "2006/09/06".

At the bottom right of the form are two buttons: "Submit" and "Return". A red asterisk (\*) is placed next to the word "Required" in the Specimen and View fields to indicate they are mandatory.

Figure 52 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 apposed to the exact area within that county where the specimen was collected.**

**Withheld data can be noted on the “specimen” page, “notes” section along contact information for interested researchers to access further information.**

**m 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]).

**Add Image**

Image to Upload \*

Specimen\*  ✓ +

View\*  ✓ +

Magnification

Date To Publish (YYYY-MM-DD)

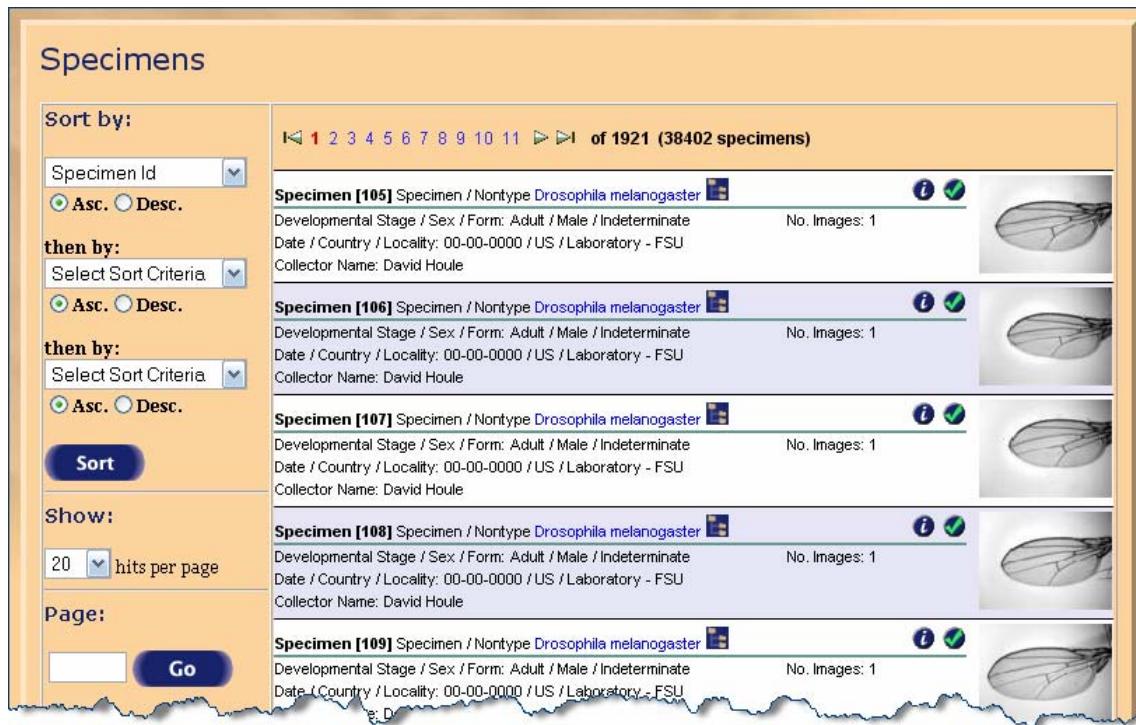
\* - Required

  
*After image selection*

Figure 53 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 ad an image.



The screenshot shows a search results page for 'Specimens'. The left sidebar contains sorting and filtering controls:

- Sort by:** Specimen Id (selected), Asc. (radio button checked).
- then by:** Select Sort Criteria (dropdown menu), Asc. (radio button checked).
- Show:** 20 hits per page, Go button.

The main area displays a list of 5 specimens, each with a thumbnail image of a fly wing:

Specimen ID	Specimen / Notype	Developmental Stage / Sex / Form	Date / Country / Locality	No. Images
[105]	Drosophila melanogaster	Adult / Male / Indeterminate	00-00-0000 / US / Laboratory - FSU	1
[106]	Drosophila melanogaster	Adult / Male / Indeterminate	00-00-0000 / US / Laboratory - FSU	1
[107]	Drosophila melanogaster	Adult / Male / Indeterminate	00-00-0000 / US / Laboratory - FSU	1
[108]	Drosophila melanogaster	Adult / Male / Indeterminate	00-00-0000 / US / Laboratory - FSU	1
[109]	Drosophila melanogaster	Adult / Male / Indeterminate	00-00-0000 / US / Laboratory - FSU	1

Figure 54 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.)

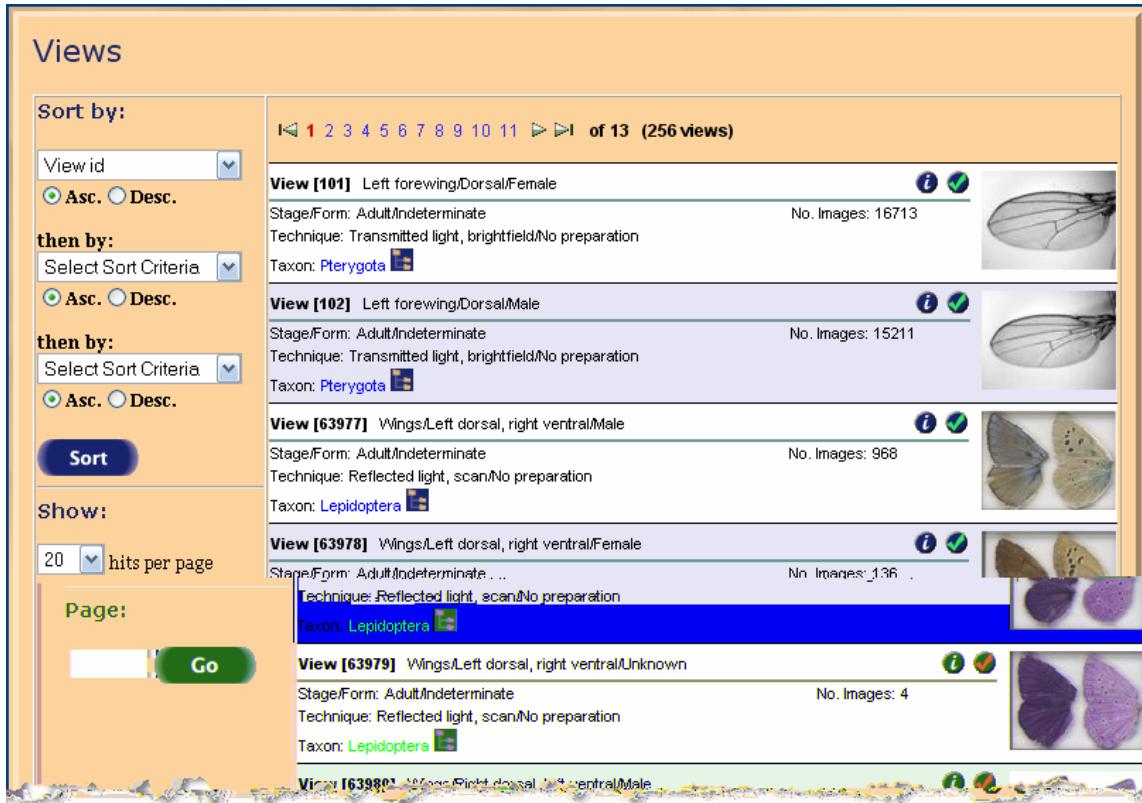
Selecting the information icon ⓘ will display detailed information about that specimen. Choosing the select icon ✓ will redirect back to the **add image** page and the appropriate specimen will be automatically filled in.

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 (Fig. 37).

(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 a 'Views' selection screen with the following interface elements:

- Sort by:** A dropdown menu set to 'View id' with 'Asc.' selected. Below it are 'then by:' dropdowns for 'Select Sort Criteria' and 'Asc.'.
- Show:** A dropdown menu set to '20 hits per page'.
- Page:** A page navigation bar with a 'Go' button.
- Search Bar:** An empty input field.
- List of Views:** A table showing 13 entries, each with a small image of the specimen part:
  - View [101]**: Left forewing/Dorsal/Female. Stage/Form: Adult/Indeterminate. Technique: Transmitted light, brightfield/No preparation. Taxon: Pterygota. No. Images: 16713.
  - View [102]**: Left forewing/Dorsal/Male. Stage/Form: Adult/Indeterminate. Technique: Transmitted light, brightfield/No preparation. Taxon: Pterygota. No. Images: 15211.
  - View [63977]**: Wings/Left dorsal, right ventral/Male. Stage/Form: Adult/Indeterminate. Technique: Reflected light, scan/No preparation. Taxon: Lepidoptera. No. Images: 968.
  - View [63978]**: Wings/Left dorsal, right ventral/Female. Stage/Form: Adult/Indeterminate. Technique: Reflected light, scan/No preparation. Taxon: Lepidoptera. No. Images: 136.
  - View [63979]**: Wings/Left dorsal, right ventral/Unknown. Stage/Form: Adult/Indeterminate. Technique: Reflected light, scan/No preparation. Taxon: Lepidoptera. No. Images: 4.
  - View [63980]**: Wings/Right dorsal, left ventral/Male. Stage/Form: Adult/Indeterminate. Technique: Reflected light, scan/No preparation. Taxon: Lepidoptera. No. Images: 1.

Figure 55 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 (Fig. 43).

(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.

#### **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.

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 apposed to the exact area within that county where the specimen was collected.***

***Withheld data can be noted on the “specimen” page, “notes” section along contact information for interested researchers to access further information.***