

A Simplified Guide to the Herbarium Database

Version 2 – 8/2009

The Herbarium Database was created for the Eckert Herbarium at Buffalo State College in Buffalo, New York. It is an application for Microsoft Access with programming by Peter Crane and with design and documentation by James Battaglia. Its creators had two goals. First, to make a database of the Eckert Herbarium's collection of vascular plants for posting on the internet. They also wanted to use those records to print labels, to conduct searches and to make simple reports. Considering its limited purposes and the fact that the application and its database constitute a single file, the authors think that it would be best employed in small herbaria.

To use the Herbarium Database, your computer should be running Microsoft Office Professional and have sufficient memory to hold the file. This guide assumes you are using the Microsoft XP and Access 2007; procedures on the Microsoft Vista Operating System and on older versions of Access or XP may vary from those described here. This simplified guide will get you started. Because Access is a complex program, users are advised to obtain an operating manual for that program.

On this downloadable version of the Herbarium Database, the header on Data Entry and Switchboard screens and on labels generated from the program read "Herbarium Database." Users can easily change the text in these headers and "personalize" the database. All data fields and their specifications can be redefined as easily. Consult a manual for Access. Also, early experience with the Herbarium Database saw the file grow very rapidly. In response, the designers activated the Compact and Repair function (under the MS Office Button/Options/Manage). This function (which is not the same as compression; read about it in Help) reduced the file significantly. You can activate Compact-Correct manually or set it to function at every closing of the database. Or not use it at all.

We encourage users to contact the Eckert Herbarium about problems or errors with this application. We cannot guarantee any assistance, but we are interested in "bugs" that others encounter. Suggestions and other conversation are also welcome.

DISCLAIMER:

The Herbarium Database has not been field tested and users of this application do so at their own risk. The Eckert Herbarium and Buffalo State College are not responsible for any damage or loss to data, programs, networks, or hardware resulting from the use of the Herbarium Database.

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Instructions for Basic Operations

Open the Database

IMPORTANT: READ FIRST!

When users open the database, a Security Warning box may appear notifying them that certain content in the application is insecure. If this warning appears, click on Options in the warning box and then click in the radio button to the left of the words "Enable this content." Click on OK. The warning box should disappear. **Without enabling the content, the special features of the Herbarium Database will not function!**

To open the database, double click ("click" means left click unless otherwise noted) on the file for the Herbarium Database. At the Eckert Herbarium, this file is located on the desk top in a folder called Eckert Herbarium Database. A Switchboard screen appears inside a larger Access screen. Click on the Herbarium Data Entry button and the first active record in the database appears. Alternatively, under Forms on the left side of the Access screen, click on Herbarium Entry Form. The record screen and the Switchboard are the only ones resident to the Herbarium Database; all others are Access/XP screens.

Movement in the Database, Create a New Record, Record Bar

Movement around a record is simple. To move the cursor to the next data field, press the Tab key. Avoid using Enter for this purpose. You can "jump" to any data field by placing the cursor in the desired field and clicking.

You can move around the database by using the Record Bar found on the lower left side of the record. Clicking on the left facing triangle (◀) moves you to the previous record. A click on the bar-left facing triangle (◀|) moves you to the first record in the database. The right facing triangle (▶) takes you to the next record, and the right facing triangle-bar (▶|) takes you to the last record in the database.

Buttons on Home Tool Bar also allow movement around the database. Click on the Home Tab (upper left side of the Access screen) to bring up the Home Tool Bar. On the right end of the tool bar is the Find Box. Clicking on the downward pointing triangle (▼) next to "Go to" opens a menu with the options for moving around the database.

There are several ways to create a new record. On the Record Bar, clicking on the right facing triangle followed by a yellow asterisk (▶*) will create a new record. If you are on the last record in the database (or a subset of the database), clicking on the right facing triangle (▶) creates a new record. On the Home Tool Bar, the Find Box (under the Go to menu) and the Record Box, each have a button for creating a new record.

There are two boxes on the Record Bar. In the center of the Record Bar is the Current Record Box. The number after the word "of" shows the total number of records in the database (or a subset of selected records). The number before "of" is the number of the currently displayed record, numbered sequentially from the start of the database or a subset of selected records; this number does not necessarily correspond a value in any data field. The Search Box at the right of the Record Bar enables a type of search; see **Query, Report Wizard, Search Box, Filter, Multiple Labels** on page 5 – 6.

Herbarium Number

When the Herbarium Database creates a new record, it automatically assigns it a unique number. This Herbarium Number is used to identify the record and you cannot alter it. It has its own data field. See **Herbarium Number** on pages 8 – 9.

Save, Delete & Delete Records

You can save a record at any time by typing Control S or by clicking on the Save button above the Home Tab on the upper left hand side of the Access screen. Alternatively, you can click on the Office Button and, when the drop-down menu appears, click on the Save button. Finally, on the Home Tab Tool Bar, the Record Box has a Save button. All of these options save your data without moving to another record. Please note that whenever you move to another record or close the database, the program automatically saves any additions or changes to the current record. Proofread your data carefully before saving or moving on to a different record.

To delete the data in any data field, select the data and press the Delete key.

To delete a record, click on the File menu and then click on Delete Record. Or on the Home Tool Bar in the Records Box, use the Delete menu. **DELETE WITH CAUTION!** When you delete a record, its data is irrecoverable and its herbarium number can no longer be accessed.

Edit Records, Data Fields

To edit a record, call up the record, make the changes in the appropriate data fields, and save or move to another record.

The Herbarium Database has 21 data fields. Instructions on how these fields are used at the Eckert Herbarium are found in **Procedures Specific to the Eckert Herbarium** on pages 8 –15.

Spell Check

You should check all records for spelling before saving or printing. Unfortunately, Access 2007 no longer flags misspelled words with a red, squiggly underline. First, select the record by clicking in vertical bar immediately to the left of that record, or use the Select menu in the Find Box on the Home Tool Bar. If you do not select the record, the spell checker will check the entire database! In the Records Box on the Home Tool Bar, click on the spell checker. You can select multiple labels for spell checking by using a filter as explained in **Query, Search Box, Report, Filter, Labels** on pages 5 – 6.

Users of the Herbarium Database in New York state might consider the installation of two spelling dictionaries available as free downloads from the New York Flora Association (nyflora.org). One file (plants.dic) contains the binomials for every taxa of vascular plant in New York state and the other file (authors.dic) the accepted abbreviations for their authors. At the Eckert Herbarium, we combined the two files into one and added it to Access and Word as a custom dictionary. This change greatly facilitates the use of the spell checker.

Buttons: Print This Label & Print Labels

Two buttons at the bottom of the record allow you to print labels. To print an individual label, bring up the record and click on the Print This Label button. **Preview and spell check all labels before printing!!** Finish by clicking on one of the Print buttons accessed through the Office Button.

You can print multiple labels, generally three per page, by using the Print Labels button. See the next section, **Query, Report Wizard, Search Box, Filter, Multiple Labels**.

Query, Report Wizard, Search Box, Filter, Multiple Labels

Query and Report Wizard are resident functions in Access. They are available on the Home Tab Tool Bar. Query is used to search the database. Report Wizard formats the records/data selected by a query (or any search function) into a report. At this time no one has tried to print such a report. Users will find these functions suitable for most purposes; however, an explanation of these functions is beyond the scope of this guide. Below are brief explanations of two other resident search functions: the Search Box and filters.

The Search Box on the Record Bar finds all matches for the values entered there. For example, enter the word Rosa and press Enter. The first record with the value Rosa anywhere (including inside words) in any data field will appear; pressing Enter will bring up any additional instance of that value in that record or another record.

Note: The instructions regarding Filters may be accurate for the XP OS only.

Filters "filter" (i.e. search and select) the database for all records finding **exact matches** in any data field or any combination of data fields that you specify. For example, you can filter the database to find all records with the word Rosa in the data field for genus. Begin by clicking on the Clear the Filter button at the bottom of the record screen. On the Home Tab Tool Bar in the Sort and Filter Box, click on Advanced Filtering. On the drop-down menu, click on Filter by Form. A blank record appears. In the data field for Genus, enter Rosa. Now back on the Advanced Filtering drop-down menu, click on Apply Filter. Access will find all records that exactly match the value Rosa in the data field for Genus. A record for a specimen in the genus Rosa will appear. Move to the next record; it too will be a record for the specimen in the genus Rosa; the database has been "filtered" for the genus Rosa and only those records are accessible. Note that the word Filtered appears on the Record Bar. The second number in the Current Record Box shows the total number of records in this subset of records. You can print a label for the visible record by clicking on the Print This Label button. Use the Print Labels button to print a label for every record selected with the filter. There is more information about printing labels below.

You can filter for values in more than one data field. For example, you could enter Rosa in the data field for Genus and canina L. in the data field for Species/Authority. The filtered database will include only those specimens which exactly match the filter criteria; that is, specimens named Rosa canina L. By using resident functions in Access, you can save or print the filtered database, or create, save or print a report created from the filtered database. Consult an operating manual. To return to the complete database, click

on the Clear the Filter button or on Clear Filter on the Advanced Filtering drop-down menu. Clicking on the word Filtered on the Record Bar returns you to the complete database but does not remove the filter criteria.

More about printing multiple labels with filtering. Suppose you want to print labels for records with Herbarium Numbers 8–55. To begin, click on Clear the Filter. On the Home Tab Tool Bar, click on Advanced Filtering and then Filter by Form; a blank record will appear. In the data field for Herbarium Number, enter >7 and <56 (greater than 7 and less than 55; that is, 8–55). **Note:** the syntax is critical. Click on Apply Filter. The record with Herbarium Number 8 will appear; on the Record Bar, it will be number 1 of 47 records. Click on Print Labels. The selected records will appear as labels on a print preview screen (up to three per screen). Proof the labels, edit as necessary, and print.

You can use a filter to print labels for records not in any sequence or relationship. Initiate a filter. On the blank "filter" screen, in the data field for Herbarium Number, enter the Herbarium Numbers of the records you wish to print; separate each number with the word "or"; for example, 7 or 15 or 1397 or 1457. Again, syntax is critical. Click on Apply Filter. Access will select those only those records that have the values 7, 15, 1397 and 1457 in the data field for Herbarium Number. Click on the Print Labels button. Proof before printing. When you are finished printing, be sure to click on the Clear the filter button.

There are more filter functions available: for example, these numeric functions might be used with Herbarium Numbers. $\geq x$ will filter all records equal to or greater than x . $< x$ will filter all records not equal to x . $< x$ filters for all values less than x , and $> x$ filters for all values more than x . Consult a competent guide to Access for a lot more functions and instructions.

Annotations

Part of herbarium maintenance is updating or correcting names on specimen sheets and in the database. Such changes are called Annotations.

Common annotations include: corrections in spelling, corrections in determination (i.e. misidentification), revisions of the accepted name, and confirmations. In the data field for Annotation History, you can create a record of these changes. Users of the Eckert Herbarium will find instructions on how to handle the common annotations in **Annotation History** on pages 13 – 15.

Annotations can be confusing! If you encounter one, consult a collections manager.

Backup Data

As a protection against the unintentional loss of part or all of the database, you should create a backup copy (-ies) of the database and update the backup copy (-ies) at the end of every session if new records were created or existing records edited. To create a backup copy, exit the Herbarium Database. Right click on file for the Herbarium Database. On the drop-down menu, click on Copy. Place the cursor on a location for the backup (at the Eckert Herbarium we use a folder named Eckert Herbarium DB Backup) and right click. Select Paste. If a copy of the Herbarium Database already exists in that folder, a Confirm File Replace Window appears. Select the yes radio button and finish as instructed. Backing up the database on an external storage device such as a flash drive

provides additional safety. To copy the database onto a flash drive, insert the drive into the proper port. At the Eckert Herbarium, the flash drive appear under My Computer (and not on the Desktop) as removable disk(F:). After copying the Herbarium Database file (see above), open the removable disk. Place the cursor over the documents folder and right click. Select Paste. Select yes if a Confirm File Replace Window appears.

Remember that the Herbarium Database application and the database it creates are one file. As the database grows, the time needed to create a backup increases. Enabling the Compact/Repair function greatly reduces the size of the file.

Exit the Database

One way to exit the Herbarium Database is to bring up the Switchboard and click on Exit Access Altogether. Bring up the Switchboard by double clicking on Switchboard under Forms on the left side of the Access screen, or by clicking on any portion of the Switchboard not obscured by the current record. Alternatively, and more simply, exit the Herbarium Database and Access simultaneously by clicking on the x upper right hand corner of the Access screen.

Procedures Specific to the Eckert Herbarium

Database Log

Every session with the database should be documented in a Database Log. The Database Log is an Excel file located in the Eckert Herbarium Database folder. The record for each session should include four items: the name of the worker (format: first initial and last name, e. g. "J. Smith"), the date (numerical format: year/month, e.g. "2009/01"), the records created and/or edited identified by Herbarium Number (format: 1563, 1674, 107) and the records left incomplete. For this last item, enter the Herbarium Number of each incomplete record followed by a reason why it is incomplete in parentheses. **At the beginning of a work session, the user of the database should proof all the records entered or edited by the previous worker. Before closing a work session, the worker should proof all records on which he worked.**

Data Fields: General Instructions

This section of the **Simplified Guide** contains information on how to employ the data fields at the Eckert Herbarium: what information goes in each field and how it is entered.

Sources of information for a record include the collector's notes (on a newspaper flimsy or from a field notebook) or an existing label. If you are working from an existing label, be sure that all the information on the label is entered somewhere in the record. Sometimes you may have to add information (e.g. add the name of a county or town) or make corrections (e.g. spelling). If you are unsure of what to enter or how to enter it, ask a collections manager for guidance.

When entering data, the general rule is to use no abbreviations, even if the source uses abbreviations. There are exceptions which are **always** used. They include the terms USA in the data field for Country and in the data fields for Genus and Species/Authority, sp. (species), ssp. (subspecies), var. (variety), f. (form) and the standard abbreviations for the names of authors (e.g. L. for Linnaeus. Other uses of abbreviations are cited below.

If you encounter an illegible word/phrase, enter "illegible word" in parentheses. For example, "growing in full sun on (illegible word)." Place unknown abbreviations in parentheses; for example, "near (unknown abbreviation – Tld.)." Uncertainty about a word or piece of data can be indicated by question mark; for example, "town of Hume?" or "growing on limestone? outcrop." Finally, set Access to use straight quotes (" ").

1. Section:

Click on the drop-down menu triangle (▼) to see the four sections: vascular plants, mosses and liverworts, fungi, and lichens. Click on the one appropriate for the specimen. This data field does **not** print on the herbarium label.

2. Herbarium Number:

Every record in the database (and hence, every collection in the herbarium) is identified with a unique number, the Herbarium Number. The program automatically

assigns the Herbarium Number sequentially when it creates a new record. Do not enter any information in this field; press Tab to move the cursor to the Genus box. Copy the Herbarium Number on the specimen sheet in the blank following the stamped phrase Herbarium Number:_____. Use this six digit format: 000021. Print neatly using an archival black ink pen or a lead pencil that makes a dark mark. Add the appropriate stamp to sheets that lack one; the preferred placement is in the upper right hand corner of the sheet. If you make a mistake in pen, paste a piece of mounting paper over the error and print the correct number on that. Errors in pencil should be erased and neatly reprinted. Labels created from this program, will have the Herbarium Number printed on them. Check that the number on the label and on the herbarium sheet are the same.

Note that the database program does not include introductory zeroes for any Herbarium Number. The specimen with the Herbarium Number 000051 will appear as 51. All manipulations of the database will use 51 and not 000051.

Also note that several hundred specimens in the Eckert Herbarium have identification numbers stamped on their labels. These numbers are obsolete. In the data field for Comments, enter "formerly Herbarium Number - 000."

NOTE:READ BEFORE ENTERING DATA IN FIELD 3 AND 4.

Before entering information in the Genus and Species/Authority data fields, consult the Integrated Taxonomic Information System (ITIS.gov) website to check if the name is spelled correctly and currently accepted. Simply click on the link under Favorites. Follow the directions on the first screen for a Quick Search. When conducting a search at ITIS, it is important to spell the search name correctly. Consult **MADCapHorse** to resolve spelling issues. If you find that the name is not accepted or is not spelled correctly and you are working from an existing specimen label, you must stop and make corrections on the herbarium sheet. See Annotation History on pages 13 – 15. **For future searches, it is critical that the name and authority be identical for all records of a taxon.** If you are unsure, consult a collections manager. If you cannot resolve a question, leave the record incomplete and record that fact and the problem in the database log.

3. Family

Enter the family name. Always capitalize the first letter. For plants, all family names end in -aceae. While working with existing labels, you will find family names (such as Compositae) that do not end in -aceae. Such names are obsolete; use only the updated family names in the database.

4. Genus:

Enter the accepted name for the genus (see text box above). Always capitalize the first letter. If you are working with an existing label, check **above** that label for new or corrected names (printed in pencil or on a printed annotation label). If you are creating a record from field notes, simply use the accepted name.

NOTE: When you enter information into a data field, that information is printed in regular font on the record screen. When making labels, the genus and species/authority will print in bold italics. Standard usage, however, calls for genus and species in italics and all other terms in regular font. To our knowledge, Microsoft Access 2007 does not allow more than one font per data field. Here's an example of how a name should look.

e.g. *Hepatica nobilis* var. *obtus*a (Pursh) Steyerm.

5. Species/Authority:

Enter the accepted specific epithet (species name) and the authority. **Never** capitalize the first letter of the specific epithet. If the specimen is a subspecies, variety or form, enter the abbreviations ssp., var. or f. as appropriate, and then the name of the subspecies, variety or form and the authority. For example, the taxa sharp-lobed hepatica and round-lobed hepatica are varieties of *Hepatica nobilis*: in the data field for specific epithet/authority enter "nobilis var. acutiloba (Pursh) Steyerm." and "nobilis var. obtusa (Pursh) Steyerm." respectively. Enter any other term included in the name not accounted for in the other boxes.

6. Country:

Press Tab and the program automatically enters USA. Enter the unabbreviated name of any other country manually.

7. State:

Press Tab and the program automatically enters New York. Enter the unabbreviated name of any other state or province manually.

8. County:

Click on the drop-down menu triangle (▼) to reveal a menu with the names of the counties in western New York. Click on the appropriate name. For counties outside western New York or for sites in Canada, manually enter the county name or the name of the regional municipality. Use these formats respectively: Jefferson County and Regional Municipality of Niagara Falls.

Users can add or delete the names of counties on the drop down menu. On the Menu of Objects, select Tables. Click on counties. Add new county names in the blank or select and delete existing names. Be sure to include the word county: e.g. Jefferson County. The program will automatically alphabetize the list of county names.

The website New York State Regions and Counties Map and Visitors Guide (www.visitnewyorkstate.net/regions/) [See Favorites on the Eckert Herbarium web browser] provides valuable assistance with town and county names.

9. Town/City/Village:

Enter the town, city, village or Indian reservation; use this format: town of Otto, city of Olean, Tonawanda Indian Reservation. Reserve these terms for incorporated entities (i.e. places that have a government; e.g. the village of Williamsville). Other place names, even if they appear on a map, are entered in the next field. If this information is unknown, leave this field blank and enter "town/city/village unknown" in the data field for Notes.

10. Place Name:

Enter recognized place names like those for parks, neighborhoods, geographical features and unincorporated villages: e.g. Delaware Park, Johnson Falls, Counterfeiter's Ledge, Tift Nature Preserve, Snyder. For names of unincorporated communities, which

often serve as the name of a local post office, simply enter the name, e.g. Clarence Center, Mortons Corners. Follow the name with a comma. If there is no place name, leave this data field blank.

11. Coordinates:

Enter coordinates. Use this format converting from other formats if necessary: N 00° 00' 00" W 00° 00' 00". Note the spacing. Make a degree sign by typing Alt 8. End this entry with a period. If you do not know the coordinates, leave this data field blank.

12. Specifics of Location:

More specific details on the collection site. List those details from general to specific. For example, "on south side of the trail from parking area along west side of the bog." If you entered coordinates in previous data field, follow this entry with a comma. If not, end with a period.

13. Collegit:

Enter the name of the collector. Use this format: J. Doe. Note the use of a single initial with a period rather than a first name, J. Doe (not John or J. H. Doe). To insure the completeness of future searches, enter a collector's name the same way every time.

If there is more than one collector, enter only the name of the primary collector or the name that comes first alphabetically. Enter the names of the other collectors in the data field for Notes. If the collector is not known, enter Collector unknown.

14. Collection Number:

Enter the collection number, if any. Use this format: 345. The collection number is always that of the primary collector. If there is no Collection Number, enter "s. n."

15. Date of Collection:

Enter the date of collection. In this data field, use a numerical format: year/month/day; for example, 2008/09/25 (2008 September 25). An unknown month and/or day is entered as 00; for example, 2008/00/00. To enter the collection, a specimen must dated at least to year. You may write the unabbreviated date in the data field for Comments or, if needed for clarity, in Notes.

16. Habitat:

Enter the community name (if known). Enter the names of associates beginning with the overstory and ending with the understory. Use the words on, under, with, and over as appropriate. Include information about soils, slope, aspect, moisture, soils, and light. For example: "limestone woodland, on well-drained rocky soil, under *Acer nigrum*, *Acer saccharum*, *Sambucus racemosa*, with *Dryopteris marginalis*, *Cardamine concatenata*". If no habitat information is available, type Alt 1 "No information recorded" will appear.

For the standard names of ecological communities in New York State, see Reschke, Carol. **Ecological Communities of New York State**, 2nd Edition, edited by Edinger, G. J. et al. January 2002; check the nyfa.org for updates.

17. Notes:

Enter all the information that you want to appear on the herbarium label that does not fit elsewhere. Below are examples of types of data to enter in this field and on how to enter them. Try to enter them in the same order as they appear here; **separate items with a semi-colon and note the spacing.**

Examples: Data Field for Notes

The name(s) of the determiner, if different from the collector, and the date of determination; use this format: "determinavit - John Q. Doe, December 20, 2008." Enter "Determiner unknown," "date unknown" as appropriate.

The names of the collectors if there are two or more. Use this format: "collegit - John Q. Doe, Alfred E. Newman, Peter F. Smith." The name of the primary collector comes first, the other names alphabetically by last name. If there is no primary collector, list the names alphabetically.

Information about the morphology of the specimen; for example, "flowers white and sepals deeply cleft, stems glabrous"

If a taxon is not native, enter "alien"; also terms such as naturalized, adventive, rare, abundant

Any information from an original label that is not entered in another data field. For example, "elevation – 1240 feet."

If necessary for clarity, the unabbreviated date of collection: e.g. date of collection - September 9, 2009.

Enter the ecozone or ecoregion. Ambitious workers can find this information on maps posted in the herbarium. Format: ecozone - Cattaraugus Highlands

Enter the common name. Use **MADCapHorse** as a source for common names. Common names are **not** required. Use this format: "common name - day-lily"

If a specimen is mounted on more than one sheet, identify the sheet in this way; sheet 1 of 2 or sheet 2 of 2, etc. The individual sheets of such specimen should have sequential Herbarium Numbers but the same Collection Number.

End the data field for Notes with a period.

Note-Family number. The Eckert Herbarium formerly arranged the families according to **Gray's Manual of Botany** (1950, 8th Edition, by Merrit L. Fernald). Each family was assigned a number, the family number, taken from that book. Many sheets in the Eckert Herbarium have the family number printed in pencil on the specimen sheet. Those numbers are now obsolete. In 2008, the Eckert Herbarium changed its organization (except for ferns, which use a more recent treatment) to that of the **Manual of Vascular Plants of Northeastern United States and Adjacent Canada** (1991, 2nd edition, by H. Gleason and A. Cronquist). It is no longer necessary to note family numbers in the database or on the specimen sheet.

Note: The data in the following fields below does **not** print on the herbarium label.

18. Community Name:

Enter the community name. A redundancy that may help with future searches. If unknown or undeterminable, leave blank. This data field is also available for redefinition.

19. Annotation History:

Note: Most herbaria do not allow any writing on the specimen sheet or the original label. They make a special Annotation label that is glued above the original label on the specimen sheet.

Here is how you handle the common types of annotation at the Eckert Herbarium. Enter records of annotations chronologically starting with the most recent.

Correction of Spelling

On a label, if a name or author is misspelled or partly missing, neatly print in pencil the correctly spelled, complete name **above** the original label. The corrector write his name (J. Doe) and date the correction. If the specimen has been databased, correct the spelling in the appropriate data fields. Make no other record of spelling changes.

Corrections in Determination (Identification)

If a specimen is misidentified, neatly print the correct name and authority **above** the label in pencil followed by the new determiner's name or initials and the date. The specimen's name must also be corrected in the appropriate fields on the database record. Also, in the data field for Annotation History, write the erroneous name and authority, the name of the determiner and date of determination followed by the words "corrected to"; then write the correct name and authority, the name of the determiner and the date of determination. The names of both determiners and dates of determination are in parentheses. A simple example clarifies these instructions. In this example *Claytonia caroliniana* was erroneously identified as *Claytonia virginica* in 1978 and corrected in 2005. Note the format: "*Claytonia virginica* L. (determinavit – A. Newman, November 16, 1978) corrected to *Claytonia caroliniana* Michx. (determinavit – J. Doe, May 5, 2005)." Use the phrases "Determiner unknown" and "Date unknown" as appropriate.

Revision of the Accepted Name

If a taxon has been revised and renamed, neatly print the accepted (new) name and authority in pencil **above** the original label. If the names are considered synonyms, the new name will be preceded by an = sign. Check synonymy at ITIS.gov. The name of the annotator and a date should follow the accepted name. The specimen's name must also be changed in the appropriate fields on the database record. In the data field for Annotation History, enter the unaccepted name and authority followed by "revised to" and then the accepted name and authority followed by the annotator's name and the date of annotation in parentheses. Again, a simple example clarifies: "*Smilacina racemosa* (L.) Desf. revised

to *Maianthemum racemosum* L. (annotator - J. Doe, September 25, 2008)." Use the phrases "Annotator unknown" and "Date unknown" as appropriate.

Confirmation of Determination

A third type of annotation is a confirmation. Someone examines a specimen and agrees with the determination. He prints an exclamation point (!) and his name or initials and the date. This exclamation point is placed above the label or above the latest change in determination or accepted name. In the data field for Annotation History, enter the confirmed name, the annotator's name or initials and date. Use this format: "*Maianthemum racemosum* L. (confirmavit – J. Doe, March 6, 2008)".

Record of Voucher

If a specimen is a voucher or was examined and/or recorded for a scientific study or another database, enter the pertinent information (including a date) in this field. Also print the same information in pencil on the specimen sheet (or on an Annotation label), preferably on the bottom of the sheet adjacent to the label.

20. Distribution or Loss of Specimens; including loans

Use this section to account for the distribution and loss of specimens. For Distribution, enter where the specimen was sent and the date sent. Use this format: "Specimen transferred to the Clinton Herbarium (BUF), Buffalo Museum of Science, June 31, 2005." For specimens consumed in the classroom, lost, discarded, or destroyed, use this format: "Specimen discarded 2008." Use specific verbs as appropriate.

For loans, enter to whom the specimen was loaned, the dates of loan and the projected date of return. Include contact information. After the loan is returned, retain a record of to whom the specimen was loaned and the loan's inclusive dates; for example, "Specimen loaned to Clinton Herbarium (BUF), Buffalo Museum of Science, September 1, 2008-December 31, 2008."

21. Comments:

Enter any data, temporary or permanent, pertinent to the specimen or the record, that you wish to retain but do not wish to appear on the label. For example, comments on the condition of the specimen.

Duplicate Collections

A collector may collect multiple specimens of the same species at the same time and place. The "extra" collections are called duplicates. Duplicates share the same collection number and are not intended for the same herbarium. For the specimen retained in the Eckert Herbarium, in the data field for Notes, record the total number of duplicates and where each was sent. For example, "two duplicates – duplicate 1 to the Clinton Herbarium (BUF), duplicate 2 to the New York Botanical Garden (NY)." Until a duplicate is distributed, enter "duplicate 2 retained." In the record for each duplicate, enter in the data field for Notes: "DUPLICATE" or "DUPLICATE 1 of 2."

Replace an Original Label

As a general rule, you never write on the original label. An original label can be replaced if it is damaged or is printed on non-archival paper. A collections manager will decide which labels to replace. Carefully remove the original label from the specimen sheet and retain it in the fragment envelope. Print the new label on archival paper using the label printing function of this program and glue it at the sight of the original label.