Guidelines for Collecting Data on Bees

Data to be collected:

1. Country
2. State
3. County
4. Locality name
5. Latitude and Longitude
6. Elevation
7. Locality code
8. Date
9. Floral host
10. Collecting method
11. Collector
12. Collection code (Collection number)

Example:

United States
NM: Hidalgo Co.
5.5mi. E. Animas
1390 m
31˚57' 00" N, 108˚42'41"W
11 August 2002
G. LeBuhn #200173
Ex Sphaeralcea angustifolia

For each locality, I collect the following data – I've put an example in parentheses

1. Country (United States)
2. State (New Mexico)
3. County (Hidalgo Co.)
4. Locality name (5.5 mi. E. of Animas) – use the name of the area and the distance and direction from the nearest town (be sure that the town can be found on maps that are easily available)
5. Latitude and Longitude (31˚57' 00" N, 108˚42'41"W)
6. Elevation (1390 m) be sure to use an altimeter for this rather than your GPS
7. Locality code (Animas 1390)

A locality is defined as a site having a unique elevation and latitude and longitude. So, all collections from a site with the same elevation and latitude and longitude are from the same locality.

Locality codes are really only necessary if you are using a database program like Biota. They are unique codes for a locality. I use a descriptive name and an elevation. You can use anything that creates unique codes.

For each individual collection, I record the following:

Collection code (2002173) I use the year and then sequential numbers
Date (11 August 2002)
Floral host or if not on a host, behavior (Sphaeralcea angustifolia)
Collecting method (sweep netting)
Collector (G. LeBuhn)

A collection event is defined as a specimen or collection of specimens having a unique date, floral host, collecting method and collector at a locality.

Collection field number are unique numbers given to each collection and are tied to the collector by the collectors initials. It is important never to repeat a number. So, my number above refers to collection 173 in the year 2002 by G. LeBuhn.

Each collector must keep a record of collection data and use a collection code system (field number) to organize the data. For example, in the label above, 2002173 is the collection that refers to the collection at locality Animas 1390 by G. LeBuhn on 11 August 2002 from Sphaeralcea angustifolia. Ex is used on the label. It is latin for "from"

Collection GLB 2002173 could be the only collection or one of many collections at Animas 1390.
Collection GLB 2002173 could consist of one specimen or many specimens that all share the same collection and locality information.

Part II. How I do this

The field notebook:

1. Record date, complete locality data, locality code and host data
2. I usually drop a piece of paper with the date, locality code and host data in the vial where I transfer my bees from a cyanide jar to a storage jar.

Example

11 August 2002 Animas 1390 Tidestromia lanuginose

Processing bees:

While pinning, I place a label at the beginning of each collection of bees with all the collection codes, locality codes.

Example

Animas 1390
2002173

I then transfer all the collection data from the field notebook to a lab data book, organized by date and collection number. So, an entry in my lab data book looks something like:

11 August 2002 Animas 1390 (US: Hidalgo Co.: 5.5 mi. E. of Animas, 1390 m, 31˚57' 00" N, 108˚42'41"W) sweep netting
2002173 Sphaeralcea angustifolia (22 bees)
2002174 Tidestromia lanuginose (18 bees)
2002175 patrolling (3 bees)

11 August 2002 Animas 1390 (US: Hidalgo Co.: 5.5 mi. E. of Animas, 1390 m, 31˚57' 00" N, 108˚42'41"W) pan traps
2002176 dark blue (8 bees)
2002177 red (15 bees)
2002178 lt. Blue (7 bees)
2002179 white (3 bees)

I label each specimen with a barcode. I have someone make the barcodes for me and put the barcode on after the normal insect label.

Making labels

1)I open up a new Word document and just type the label like I want to see it, i.e.,

CALIFORNIA: Napa Co.
Rector Reservoir, 60m
3.2 km NE Yountville
38º26'13"N,122º20'57"W
17 March 2002, ex: Vicia sativa
G.LeBuhn, R.Brooks #2002001

As I said above, at each site, I make the bees collected at a single species of plant a collection record. For example, the bees that I collected on Vicia sativa at Rector Dam were collection #1 and those collected on Lupinus bicolor were collection #. 2. I recommend just keeping this system going or some other system so that you can identify and talk about each collection separately each year. You use #2002001 for this year and then start over next year with collection #2003001, etc. The point is to adopt some system by which you can talk about any particular collection event in a multi-year study and that it has a numerical identifier.

Now back to making labels

I make a label log which I actually type directly into my data base and then extract and put into Word. I cut and paste a copy of each collection event the number needed to label the bees in each lot. I do this one long continuous roll, like the original label log was sent to you. I will be putting it into columns later once I am finished.

Now I have all of my labels duplicated like this

CALIFORNIA: Napa Co.
Rector Reservoir, 60m
3.2 km NE Yountville
38º26'13"N,122º20'57"W
17 March 2002, ex: Vicia sativa
G.LeBuhn, R.Brooks #2002001
CALIFORNIA: Napa Co.
Rector Reservoir, 60m
3.2 km NE Yountville
38º26'13"N,122º20'57"W
17 March 2002, ex: Vicia sativa
G.LeBuhn, R.Brooks #2002001
CALIFORNIA: Napa Co.
Rector Reservoir, 60m
3.2 km NE Yountville
38º26'13"N,122º20'57"W
17 March 2002, ex: Vicia sativa
G.LeBuhn, R.Brooks #2002001

etc. - the above was for 3 bees collected in Collection #1 and then leave a blank line between collection events so that I can see where each separate collection event starts. I will enclose with the label paper a set of reduced labels ready to be cut out and put on the specimens.

I go up to pull down the "Edit" menu and then select "select all"

I go up to pull down the "Format" menu and select "Font" and type into the "Size" window the number 3 (for 3 point font) and click okay

I go up to pull down the "Format" menu and select "Paragraph" and select under "Line Spacing" the word "Exactly" and under "At" select "3 pt." (this sets the leading or space between lines)

I go up to pull down the "Format" menu and select "Columns" and under "Number of Columns" I start with 8 and then under "Width and Spacing" is set the "Space" (that is space between columns) to 0.00. I check with Print Preview which is selected after pulling down the "File" menu. The trick here is to get the columns as close as possible to each other without any lines wrapping around. Sometimes I can get 9 columns at others when the label lines are longer I can only get 7 columns. 8 columns is my usual maximum column width.

You are done and can now print onto your acid free, 100% linen ledger #36 white paper. Cut the labels out neatly not leaving white around the edges and place the labels on the specimens with the top of the label on the right with the specimen's head going away from you.

Suppliers:

For Insect Pins you can buy directly from Petr Kabatek in Czech Republic at 1.6 cents per pin ($1.60/hundred) which is much cheaper than BioQuip. Just email them and they will give you details how money can be sent to them and how you can order from them - email address is:

mhulovec@vol.cz

For Label Paper you want to call Crane's subsidiary , Byron Weston Co. and locate a retailer. I've used Lockwood. The contacts there are Jim or Chris Taylor 913-367-0110 xt123

You want to order X100% BWCO Linen Record Ledger White #36, item #40116. I recall that it cost about $35 per ream. Crane's ph.no. is 800-613-4507

Barcode scanners:
Intermec 1-800-934-3163 (toll-free US & Canada) or 425-348-2726. I have a Scanplus 1800