SCARABS

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Determination Labels

If you make determination labels using a computer, you may be doing it the hard way. Do you run to the literature every time you need to look up the correct spelling, author's name and date? Not too convenient, is it?

Perhaps you saved a sample of the label (or an entire row or column of them) in case you need to print out more in the future. Smarter, but you may have to save hundreds of files. Not only will they become difficult to locate after several hundred names are archived, but they will occupy considerable space on your hard disk.

The best way is to simply alphabetize the names and save them in one or more files. One file containing all scarabs is perfect for novices. For fellows like Brett Ratcliffe, who have museum-size collections, one file for each subfamily may be needed, because a single file might contain far too many names to be manageable.

Here is what a portion of such a file might look like:

Onthophagus arnetti H & C 1963
Onthophagus brevifrons Horn 1881
Plusiotis adelaida (Hope) 1840
Plusiotis lecontei Horn 1882

To make a label, simply load the file, locate the name in the alphabetized list, copy the name (to the clipboard on Macs, to the scrap on IBMs or clones), paste the name onto a template that contains one line:

Det. [your name here]

This template also contains the font size and type. The following example is Univers (modern d) 4 point.

Next, format the label to look the way you want it, perhaps making the genus and species names bold and italic, and perhaps indenting the species name. Duplicate the label to make as many as you want into a strip or row, and print. The result should look something like this:

Consider saving your file in a semi-formated style, with the same font and characterization as the finished label. In the above example there are three spaces before the species name. It could be saved on the list as:

Plusiotis ***lecontei*** Horn 1882

Notice there is no space between the species and author, because a line break goes there. Another way to format your list would be on three lines so that it looks even closer to the final label:

Plusiotis
lecontei
Horn 1882

Exactly how to save such a file is a personal choice. The closer it resembles the finished label, the less time you will need to spend when formatting the label.

If the list is also going to serve as a checklist of the species in your collection, you may want to include spacing between the species for notations.

Once you create these files, you will be able to print out additional determination labels quickly and easily. They will not take up much space on your hard disk. Moreover, you have a ready-made checklist of your entire collection.

Organizing Your Word Processor

Natural questions to the preceding article would be "Where do I put all these lists once I create them?" and "Where do I keep all my other bug files so I can easily find them?"

First, write down all the kinds of files you have, then write down a hierarchy to file them, somewhat like a file cabinet. Macintosh computers use *Folders* to store files (and other Folders); IBM computers use *Directories* to store files (and Subdirectories).

No matter what you call it, the Folder or Directory is simply a level in the filing scheme you are about to create. What follows is a sample hierarchy that you can use to organize yourself. When we refer to *level*, we really mean Folder or (Sub)Directory.

The first level let's call *Bugs*. This Folder/Subirectory will hold all your documents relating to your entomological pursuits. It will be stored within the Folder/Subdirectory of your word processor, so you will automatically see it each time you run your word processor.

Second levels could be *Labels*, to hold all your pin labels, *Letters*, to hold copies of your correspondence, *Lists*, to hold collecting lists, equipment check lists, want lists, etc., and *Misc.*, to hold everything else.

Labels could be divided into three third levels: *Determination*, *Habitat* and *Locality*. You already know how to design your *Determination* Folder/Subdirectory. *Habitat* simply holds labels like "Taken at BLB Lamp" and "Dug From Roadcut At Roots of *Quercus chrysolepsis* Liebm."

Locality could be broken down into fourth levels of broad collecting areas: *Mexico*, *CA*, *AZ*, *TX*, etc. Fifth levels could be Mexican states or counties within each American state. We do not recommend nesting deeper than five levels.

Only store a locality label if you are going to collect this locality again. When you do, simply load the label, do a Replace command to replace the old date with your new date, and print out the label. This saves creating a new one from scratch.

There is no getting around it: you must organize your files. When you do, others who use your computer will love you for it. All they will see is "*Bugs*," never knowing what a can of creepy crawlers is hidden within!

Mr. Pleocoma Versus The Electron: A Farewell To Aluminum Tropics Nets

We all know who Frank Hovore is: his collecting prowess regarding rain scarabs is legendary, and his papers on them did much to reduce the taxonomic confusion of this group. Frank is somewhat lesser known to us macho scarab dudes for his contributions to the taxonomy and biology of the Cerambycidae, a group lacking the illustrious appeal of the Scarabaeidae.

Most already know about the incident in Costa Rica this summer. Frank's thirty foot long tropics net brushed up against some electrical power wires. Instantly, the molecules of the net handle fused with those of the skin in his hand. Frank actually flatlined: no pulse, no breathing, and a swallowed tongue to boot. Only some heroic CPR saved his life. Still, Frank was left with some short-term memory loss, painful burns and softball-sized blisters where sparks exited various parts of his body.

Once the potential dangers are considered, we can see that metal poles for long nets may be replaced with a non-conductor such as fiberglass. Let us all never forget this near-tragedy so it may serve to remind us to be careful!

Self-Ballasted Mercury Vapor Bulbs

Some time ago we were told of a low-down price for a 160 watt self-ballasted mercury vapor light bulb, but we were reluctant to mention it. After all, how something selling for $21.95, which is less than half the price of comparable bulbs, be any good?

Your editors tested the bulb on a collecting trip to the cape region of Baja California on October 2-5. It appeared to work just as well as any other mercury vapor light we have ever used, including those 175 watt bulbs with heavy external ballasts. A wide variety of scarabs, cerambycids and moths flew in.

As Frank Hovore has repeatedly pointed out, one can never really know for sure what the most attractive light source is. What it comes down to is what you *think* is best after a ton of experience in the field. Even though we each have only seven pounds worth, this bulb seems to justify a place in our collecting gear, if only for the weight and space savings on those flights to the tropics.

You can order the bulb from Bulbman Inc., 630 Sunshine Lane, Reno, Nevada 89502 (or P.O. Box 2918, Reno, Nevada 89505). To place an order, call toll free in the U.S. and Canada (800) 648-1163, or FAX it to (800) 548-6216. Outside the U.S. call (702) 788-5661, or FAX it to (702) 329-6599. When ordering by charge card, your order can be shipped out the same day. There is a 15% institutional discount and a discount for a bulk order of six or more.

"Wirth"Less Tip #2

When collecting dung beetles in pastures, dung diggers are often accosted by irate ranchers. A great way to handle this situation is to tell the owner you are also collecting blister beetles, which can harm grazing animals who unintentionally eat them. Better yet, display a bottle with some meloids in it. Chances are, you will be welcomed with open arms. Thanks to Chuck Wirth for this nice tip.

Buying Rain Forest

For those of you wishing to preserve "a piece of paradise," consider purchasing some for yourself. A recent radio newscast related that the Nature Conservancy is buying rain forest with coins deposited in a donation meter at the entrance to the San Francisco Zoo and that "25 cents buys 90 square feet of rain forest." This figures out to $121 an acre, which is 43,560 square feet. This makes the offer by the Rain Forest Foundation seem reasonable.

There is a limit, for some odd reason, of six acres. The price is $100 per acre, or $58 per half acre. The deed is for one thousand years, and contains a covenant that prevents anyone for harming your land, or even entering without your written permission. The land is either in Brasilia or Costa Rica. Their address is P.O. Box 757, Plainsville, Connecticut 06062, or order by calling 1-800-847-3377.

A letter from your editors was sent to the Foundation several months ago, inquiring about the legitimacy of the Foundation. It was never answered.

San Diego County Scarabs

Our editorial offices received a letter from reader Ron McPeak regarding a project. Ron and his compatriot Phil Soto are attempting to work up the San Diego scarab fauna. They are asking for help in compiling a comprehensive list for the county. They are already well on their way; their preliminary checklist spans 9 pages. If you have any unusual specimens, records, collecting hints or localities from this area, please contact Ron at 7989 La Brusca Way, Carlsbad, CA 92009.

Quick Keys

Scarabs is proud to offer a new concept in keys to scarabs from commonly collected geographical areas: the "quick key." What follows is a quick key for the Arizona species of *Onthophagus*. Ever since Bill Warner's colossal treatise on dung trapping, demand has been high for a simplified key to these dung beetles. When identifying Arizona specimens, why wade through complex couplets to eliminate eastern species that don't even occur in Arizona?

The quick key included here is adapted from Howden and Cartwright's 1963 revision "Scarab Beetles of the Genus *Onthophagus* Latreille North of Mexico." All we did was eliminate steps in the key that did not apply to the known Arizona species. Notice that portions of the key are within brackets. This indicates that the enclosed text should not be necessary to make a positive identification; it is included from the original key only for the sake of completeness. Thanks to Bill Warner for checking the key.

Field Note Forms

Our scarab-dedicated field note form got a little larger. Not only has the paper size increased to 8 1/2 x 11 inches, but the form is now double-sided. The larger size should not be too much of a problem, because the notebook is usually stored on the dashboard of the vehicle and filled-in the next morning while sorting the previous day's catch. Most of us simply heap the catch into glassine envelopes, so all that is needed is to write the corresponding ID # on the envelope.

In a scathing letter of tangled red ink, Delbert LaRue pointed out the following: The date should be at the top of the form so one can scan through the notebook for specific dates. The ID # really becomes unimportant once the bugs are pinned and labeled. However, if you take photographic records and use slide-labeling software, this number could key slides to your notes by simply placing it on the slide. Also, some collectors print a separate pin-label with the ID # on it. There are also many additions to the body of the form.

A few explanations may be in order. The letters after temperature stand for Fahrenheit and Celsius, and those after elevation stand for feet and meters. If you are the only collector, circle the *(S)* after *COLLECTOR*. When used this way, it stands for "self."

If you find something on carrion, circle *Carrion* and cross-out *TRAP:* on the same line. The letters after *PLANT* stand for dead and alive. Those after *Burrow* stand for open, closed and plugged. Thus, if you see a form where *Burrow* and *(C)* have been circled, you know it belongs to Bob Duff or one of his disciples.

A list of the species found at each locality, as well as the number collected, would be useful, either to those studying biology or to those planning future collecting trips to the area.

The back of the sheet now contains space for additional notes and maps or drawings.

This detailed form is designed for localities where you spend some time and collect intensely. What about areas where you stop only a few minutes, such as checking street lights of several towns? A third form, "Short Stops" is designed to record semi-detailed information from just such places. If you desire, make this a double-sided form by copying the second form to the back.

Each page is supplied on a separate sheet for optimum reproduction. Please photocopy a series of these, and let's all start recording some detailed biology.

A Key To The Species of *Onthophagus* Occurring In Arizona

Adapted from "Scarab Beetles of the Genus *Onthophagus* Latreille North of Mexico," *Proceedings of the United States National Museum*, Number 3467, Volume 114, Pages 1-135, 1963, by Henry F. Howden and Oscar L. Cartwright.

1. Disc of pronotum smooth or distinctly punctate, tubercles lacking on disc or if present, less than one-half of the diameter of nearest puncture in basal area.....2
   Disc of pronotum tuberculate, punctures, if present, vague with diameters approximately equal to that of the tubercles.....8

2(1). Color uniform, rarely with humeral umbone or entire elytra lighter in teneral specimens.....3
   Pronotum and elytra decidedly different in color, or elytra bicolored or spotted.....7

3(2). Species over 7.5 mm. in length.....4
   Species under 7.5 mm. in length.....6

4(3). Basal half of pronotal disc smooth and minutely punctate or very much more finely punctate basally than anteriorly, shiny black or brown; [lateral margin of pronotum with an abrupt angle between anterior and posterior pronotal angles].
   coproides Horn (p. 14)
   Pronotum more or less uniformly punctate except near posterior edge.....5

5(4). Punctures of pronotum close and more or less uniform in size, separated by less than their diameters, each with a short black inconspicuous seta; surface dull black, finely alutaceous.
   cochisus Brown (p. 18)
   Large punctures of pronotum usually separated by one or more diameters, with or without setae; [pronotum largely smooth between punctures; frontal carina of male extending almost to eye; female frontal carina gradually elevated from middle to rounded ends which drop sharply to head surface, the ends nearer to eye than to middle].
   brevifrons Horn (p. 27)

6(3). Anterior edge of pronotal punctures lacking tubercles; [posterior half of metasternum medially with a few very large punctures near midline].
   knulli H & C (p. 69)
   Anterior edge of pronotal punctures with a small shining tubercle; [length 4.5 to 6.5 mm.; dull, alutaceous; punctures usually separated by 2 to 3 diameters; pronotal protuberance of male short, moderately broad, flat, slightly emarginate, and depressed at middle].
   subopacus Robinson (p. 59)

7(2). Under 7.5 mm. in length; [pronotum shining between punctures, not dull brownish-black; pygidium usually distinctly punctate with at least apical half shining; base of pronotum completely margined; pronotum green or coppery, anterior angles not lighter in color; elytra usually with irregular yellow areas at base and apex and with at least a few small round spots on disc].

hopfneri Harold (p. 95)

Over 7.5 mm. in length; imported from Africa-Orient.

gazella Fabricius

8(1). Tubercles of pronotum very conspicuous. Clypeus of males triangularly produced upward at middle, clypeus of females evenly rounded; if not, elytra bicolored; [pronotal setae fine and long, length much greater than distance between elongate oval tubercles].

hecate hecate (Panzer) (p. 115)

Tubercles of pronotum moderate with moderate to vague punctures at their bases; clypeus of both sexes broadly rounded or slightly emarginate.....9

9(8). Uniformly brown or black; eyes flat and narrow, 6 to 7 facets wide; anterior pronotal angles sharply rounded, posterior angles more broadly rounded, 140-145 degrees.....10

Pronotum greenish, elytra black; eyes noticeably convex, 10 facets wide; anterior pronotal angles broadly rounded, posterior angles more sharply rounded, 130 degrees, length 6.6 to 8.6 mm.

arnetti H & C (p. 98)

10(9). Pronotum of male with flat projecting protuberance, its wide shallow, usually angular emarginate anterior edge wider than base, and its external angles rounded; females with carina of vertex distinctly bent posteriorly at middle; female pronotal protuberance distinct, sharply defined.

browni H & C (p. 101)

Head of male with two upright diverging slender horns in front of the high angulate anterior margin of pronotum; females with carina of vertex nearly straight; thoracic protuberance of female very weak, poorly defined.

velutinus Horn (p. 105)

DATE ____________________

ID # ____________________

COUNTRY ____________________ STATE ____________________ COUNTY ____________________

LOCALITY ____________________

____

____

LIFE ZONE ____________________

HABITAT ____________________

TIME __________ (AM) (PM) ELEVATION __________ (F) (M) COLLECTOR(S) ____________________

TEMPERATURE __________ (F) (C) WIND: Direction __________ Speed __________ PRESSURE __________

PRECIPITATION: Clear Fog Drizzle Rain Sleet Snow Flurries Steady Intermittant __________

SKY: Sunny Clear Overcast Partly Cloudy Cloudy __________ EXPOSURE: N S E W __________

Net Hand Sift Beat Sweep Dig Under Walking Mating Feeding __________

FLIGHT Start __________ (AM) (PM) Stop __________ (AM) (PM) Duration __________ hours __________ minutes

LIGHT: BL BLB MV SV Incandescent Neon Flourescent __________

TRAP: Light Barrier Dung Pitfall Unbaited Beer Banana Carrion __________

TRAP LOCATION ____________________

DUNG: Fresh Old Human Bovine Calf Equine Swine __________

GOPHER: Nesting Chamber Refuse Chamber Mound Depth __________ SPECIES __________

WOODRAT: Inner Chamber Outer Chamber Midden Under Depth __________ SPECIES __________

PLANT ____________________ (D) (A) Foliage Bloom Bud Twig Trunk Bark Root Sap

SUBSTRATE: Ground Burrow (O) (C) (P) Roadcut Soil Clay Decomposing Granite Sand Leaf Litter Debris Rock Log

COLLECTIONS

#	Identification	Remarks

NOTES

MAP/DRAWING

SHORT STOPS

DATE
ID #
COUNTRY STATE COUNTY
LOCALITY
LIFE ZONE/HABITAT
TIME (AM) (PM) ELEVATION (F) (M) COLLECTOR(S)
NOTES

DATE
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