SCARABS

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Scatological Ramblings.... A Scarabaeologist's Guide to Dung Trapping or "Los Hermanos de Caca"

by Bill Warner

If you collect Scarabaeini and have not yet tried dung trapping, using the following methods or variations thereof will open up a whole new world to you. Both numbers and diversity of the Scarabaeines you catch will be greatly increased over the traditional "poking through piles" method. And, the time savings alone makes it worth using traps. So eat your rice and beans and go to it! We welcome you to the growing army of "lost Hermanos de Caca".

Traps

Most dung traps are a take-off on the tried and true pitfall trap. That is, simply sink an open-topped container into the ground so that the lip of the container is flush with the surrounding substrate, bait it, as in Figure 1, and "yer off." Unfortunately, unless the pitfall container is very narrow and deep, or has a narrowed neck, many beetles, especially small species such as most *Onthophagus*, will be able to fly out. A modification of the simple form is therefore necessary unless all you want is larger species. If you want live specimens, the best way to go is use a funnel over the opening so that the effective opening is too narrow for beetles to fly through. The funnel opening should be large enough for the largest dung beetles expected to be caught to fit through easily. The "Art Evans Banana Trap" buried in the ground would work well for this purpose. If you are mass trapping an area and want to collect and preserve everything, the best way to go is to use ethylene glycol in the bottom of the pitfall. Usually only about a cm of 30-50% solution (in water) is sufficient to kill and preserve everything that comes to the trap in a day. Straight antifreeze will also work, but buy the cheaper brands as they usually do not contain silicones and other chemicals (found in more expensive brands) that may make cleaning the specimens a problem. Ethylene glycol is great for extended trips, because not only does it kill the specimens quickly (so they do not chew each other up), but it also preserves them for at least several weeks. The only problem I have ever had with ethylene glycol preserved specimens is that if you leave them in the solution longer than a few days it begins to make the exoskeleton tougher and joints rubbery. That once tender *Canthon* will end up pinning up like a *Trox*, and you may end up having to use a Dremel with a diamond tipped drill bit to get a pin through the *Trox*. This of course poses no problem to your co-editor Barney Streit, D.D.S. He can leave them in until they are rock or tooth hard!! If you transfer the specimens directly to 80% (or so) alcohol, the toughening does not occur. By the way, isopropyl is better than ethyl alcohol for dung beetles, leaving them less brittle. Either one will do in a pinch, however.

Now, you ask "what kind of container should I use for the pitfall?" I have used everything from old Tang jars, to plastic drinking cups (used in the "finer hotels" that entomologists are likely to frequent on collecting trips), to Coke cans with the top cut out. My favorite container, though, is a 16 oz. "squat" plastic deli cup, from Solo. These are convenient because they come nested in

50 cup stacks in long plastic bags. They are not stiff like a glass container, so that in sand and other soft, moist substrates, all that is needed to bury a trap is to scoop out a hole with your hand or garden trowel, jam in the cup, cover it over with soil, and pack around the cup. Then, gently remove the cup and bang it against your shoe or other hard surface to clean out any dirt. Reinsert the cup in the hole (a perfect fit in good soil), add antifreeze and bait, and watch the beetles drop in. Total time for setup is 3-5 min. per trap. Unfortunately western soils are rarely this forgiving, and I have personally spent 20 minutes chipping out a hole in clay-gravel-caliche type soils in Arizona. But, if you choose the locations carefully, setting traps does not need to be time consuming.

Baiting

There are two or three standard ways to bait dung traps. The simplest way being to just dump some doo right into the pitfall. This of course leaves the specimens less than clean and easy to recover.

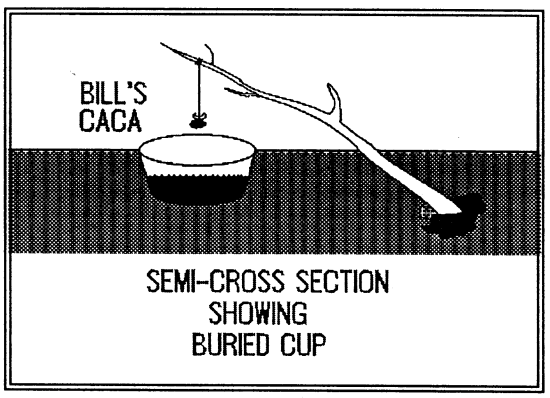

Figure 1

A second tried and true method is to dump a couple of ounces of bait into the center of a 5-6 inch square of thin cloth. Cheesecloth or gauze works best. Pick up the four hopefully clean corners of the cloth and tie the corners with string, twist-tie, or wire (bailing wire is my preference) so that the bait ends up in a cloth-covered "wad." Leave 10-12 inches loose on one end of the string or wire so that the bait can be tied to a stick jammed into the ground or propped between two rocks. The bait should be suspended about an inch above ground level at the center of the cup. See Figure 1.

My personal favorite method is to use one-ounce souffle cups, available, along with 16 oz. deli cups, from restaurant supply houses. These stack just like the deli cups and are fairly cheap. To suspend the cups above the center of the pitfall, I make steel wire stands out of coathangers or uncoated steel wire from the hardware store. To make the stands, cut a piece of wire about 8 inches long, form a loop just smaller than the largest diameter of the one-ounce cup, and bend the resulting wire tail perpendicular to the loop about 1/4-1/2 inches from the base of the loop. The "tail" of the loop can then be jammed into the soil at the edge of the pitfall such that the loop is about one to two inches above ground level and centered over the pitfall. To bait, just scoop some bait into a souffle cup and drop the cup into the wire loop. I usually keep bait in a 16 oz. widemouth plastic screwcap jar so that the top does not pop off accidentally. A couple of small twigs can be used to "chopstick" the bait into the one ounce cup, and then the clean ends of the sticks can be jammed into the soil at the edge of the pitfall so that the bait-covered ends "add to the aroma" of the trap.

Rich Cunningham used an interesting variation in a trip to Chiapas last summer: he packed "bait" into a cake decorating bag and squeezed out a sufficient amount into cheesecloth squares. This and his lack of precision on hitting the cheesecloth rather than himself earned him the official title of "Hermano de Caca." By the way, skip the chocolate frosted cake if he offers it to you!

Now, on to the real controversy...

What Kind of Bait?

Bait is not bait is not bait! Although sometimes it seems like it is. Dung beetles will come to nearly any stinky rotting or even fermenting material. Rotting cabbage, banana, tomato, fruit, meat, roadkill, and of course dungs will attract Scarabaeinae, some Geotrupinae, and Troginae to pit-fall traps. Cow or steer dung is normally a poor bait except for some common *Aphodius*. Calf dung, especially from nursing calves, is much better as a general bait. The best bait in my opinion, however, is human dung. It is readily available, since most Scarabaeologists are literally brimming with it, and transportable. There is some debate between the "Gainesville crowd" and western scarabaeologists as to whether pig dung works better than human dung. I have to admit, pig dung does work a little better for some Geotrupinae (e.g. *Mycotrupes* and *Peltotrupes*) but the same species can also be taken in good numbers with human dung. And, as long as you are your own source of bait, you won't pick up any of those nasty swine diseases, unless you are into that sort of thing. Poking through human dung at rest stops, etc., especially south of the border, for the abundant scarabaeines that are usually present is tempting, but risky because of potential pathogens. If you trap using your own "bait," you can't contract anything "new" except perhaps for some Scarabaeines.

Another danger of dung trapping is illustrated by the following incident that occurred a few years ago in Florida. An entomologist (name withheld for fear of reprisal) was off on a trip with his family and planned to do some dung trapping along the way. For bait, he had a mason jar full of fresh hog dung sitting in the back of the station wagon. A wise move except for one fatal flaw--he had tightened the lid on the jar. Now, hog dung is kind of like bread dough. It rises and doubles in size when covered for a few hours. Needless to say, the eventual explosion left the occupants and a car interior covered with a mist of hog pucky, a material less than easy to remove from a car interior. Now, you see why I keep bait in a *plastic* jar!

According to some workers, goat or sheep dung will attract many of the deer dung specialist Aphodiines. *Phanaeus demon* comes to goat-baited traps in Chiapas, but it is just as easily caught with human dung-baited traps. Some collectors have collected *Phanaeus* and other groups with rotting banana, rotting cabbage, or rotting mushroom baits as well.

Where to Bait

You might think that you could sink a trap at a location and pick up about anything at the spot. WRONG. Many species, especially smaller *Onthophagus* and some Canthonines are surprisingly microhabitat specific. One trap set in the open may catch numbers of Canthonines and one or two *Onthophagus*, whereas another trap set under forest canopy 20 feet away may catch hundreds of *Onthophagus*, *Deltochilum*, and different species of Canthonines. Because of this effect, I usually try to set at least five traps at every locality, with some traps in shade and some in sunlight. Good spots to trap are along fencelines between pasture and forest with some just into the forest and others in the open. This way you can get the full "edge effect" of the ecotone. Species diversity is usually much greater along edges of forests than in the forest proper, and setting traps at the edge of dense forests will nearly always yield at least a few of the forest species. Also, if you are in an area where the soil changes from sandy to clay, set traps in both soil types. Some species will be more or less restricted to one soil type (for example *Phanaeus* spp.). The same is true of riparian areas, as many Scarabaeines and other dung specialists

(such as *Phanaeus triangularis*) are strongly associated with riparian areas.

The size and age of your bait may also affect the proportions of what your traps catch. *Phanaeus* usually will be most strongly attracted to freshly-baited traps, with much smaller numbers coming to day-old bait. I have a feeling that this is because they can "smell" *Onthophagus* on dung, and have evolved an aversion to *Onthophagus* infested dung because of cleptoparasitism: small dung beetles get incorporated into brood balls and ruin it. Howden has described this phenomenon in print.

Preserving the Catch

As mentioned above, isopropyl alcohol is the best preservative for dung beetles. If specimens are removed from traps and dried, they tend to rot and fall to pieces, which would be expected knowing Scarabaeine food habits. So, it is best to strain them out of the trap fluid and put them directly into alcohol. If possible, specimens should be covered by at least 1/4 of their volume by alcohol. This means a full bottle of alcohol should preferably be not more than 3/4 full of beetles to ensure sufficient "pickling." To remove specimens, I like to use a large tea strainer and a spare deli cup to receive the trapping fluid. That way, the extra cup, complete with the strained fluid, can be placed back into the pitfall hole and a fresh bait added for continued trapping.

I usually rinse the specimens in the strainer with clean water in the field prior to putting them into alcohol, especially if some of the bait has fallen into the killing fluid because of rain or action of the beetles landing directly on the bait. Doing this yields cleaner, less odiferous specimens, and a few corn kernels from Saturday's dinner. Necessity breeds ingenuity, and as Rich and I demonstrated in Chiapas, the end of a net bag works as a dandy strainer when you have lost the one you brought with you. Remember though, the heady fragrance of damp fecal netbags as they grow hot against the engine compartment of your rented VW Combi may just earn you the dreaded title of... Hermano de Caca.

Editors' Note

We want to thank Bill Warner (Una Grande Macho Hermano de Caca) for this great scatological treatise. When it comes to this subject, Bill is an expert, heads and "brown tails" above the rest. Bill could go on forever about the wonders of dung and baited pit-fall trapping, but the editors had to draw the line at the "scratch and sniff" section of the article. Nice job Bill.

Letters to the Editors

Dear Editor,

In the most recent (and only) *Scarabs* edition, a paragraph in the Wild Guess Dept. section caught my attention. It states: "This explains why the upstate scarab collectors seem so spoiled and sissified when they come to Southern California to collect. Down here you really have to scrounge for bugs, and they end up getting shut-out. Now, we get shut-out too, of course, and often, but we are used to it, so we don't act like babies and whine all the time."

This paragraph had some glaring inaccuracies that needed correction:

1.) *Phobetus panamentensis* - need I say more, Rich? Those 47 beetles were picked up by two up-state collectors in one outing! We haven't gotten any free trips with our frequent flyer miles along Highways 136 and 395!!

2.) *Megasoma cedrosa* - what would the Southern California contingents' split be if they relied on Dr. Art Evans catch?

3.) Regarding Dr. Evans and the above statement. On which side of the Grapevine does he live? Need I say more?

Sincerely,

Dave Russell
"Up-State Collector"

Reply: Thank you for caring enough to reply. Our only aim with *Scarabs* is to uncover the truth. Regarding your first point: anyone can get lucky. Point in case: one of the editors once actually found the first female rain beetle while tagging along on one of Frank Hovore's trips. Further, the rumors that Rich rubs a rabbit's foot the whole four hour trip up Highway 395 are not at all true!

For your second point: Dr. Evans is one heck of a great collector, but even he can have a bad day. His collection is awe-inspiring, like looking at Yosemite Valley for the first time. Jim Saulnier once said this about Dr. Evans' abilities in the field: "I hope to be that good someday." Some of you readers no doubt miss the gravity of this utterance. You see, Jim is incredible himself, yet he looks up to Dr. Evans. Since this issue is about BS anyway, the editors will mention that they have seen Jim *say* he located an extremely old *Neotoma* nest, and uncover mummified *Aphodius* eggs from beetles that died during the Jurassic period - no small trick - and identify - from only the eggs - the (extinct) species. And yet, he feels he is not on Dr. Evans' level.

About your, third point. Dr. Evans was born in Lancaster, which we consider north of the Grapevine. There could be a connection between being born in Northern California and your reply; we don't know.

Perhaps we should go on to greater controversies: There is a really bitter feud going on between the Florida, Texas and Arizona guys on who produces the most attractive (read "stinky") human dung. But that will have to wait for another issue.

The Editors

A New Locality For Dinacoma Marginata

by Scott E. Haskins

While scanning the entomological collection of the San Diego Natural History Museum, I ran across a specimen of *Dinacoma marginata* Casey labeled "Encinitas" San Diego Co., CA 17-June-1978 Coll. B. Imaizumi. This record extends the known range north a few miles from the town of Del Mar, an area where this beetle has been collected. Dave Faulkner says that he knows the collector, and that the specimen was probably collected in the vicinity of Rubenstein Avenue in what was then Cardiff, CA., but is now part of Encinitas. *Dinacoma* should be sought on the hillsides and in the small coastal canyons between San Diego and Carlsbad, and between I-5 and the coast. Surprisingly, many areas of natural vegetation still exist in this area. Thanks to Dave Faulkner for access to the Museum collection.

Thank Scott Haskins of San Diego for this collecting note. *Dinacoma marginata* has also been taken in Del Mar, California, last summer. It would be very interesting to compare good series of the Del Mar, Bautista Canyon, Scissors Crossing and Baja populations.

The previously unknown female of *Dinacoma marginata* has been taken from Bautista Canyon by Rich. He found it at night on the surface of a sandy, dusty path near a blacklight.

Recent Synonomy

Hovore Hoax = Duff Doozy = Terry Tale = Bill's BS = Delbert's Delusion = Frank's Fibs = Taylor's Trick = Jim's Jive.

Forest Service Maps

Sometimes getting good maps of our U.S. Forests is a little difficult. Price lists can be obtained from the following regional offices of the U.S. Forest Service:

California: 630 Sansome Street, San Francisco, CA 94111, or call (415) 556-0122.

Nevada, Utah, Idaho, Wyoming: Federal Building, 324 25th Street, Ogden, UT 84401, or call (801) 625-5354.

Arizona, New Mexico: Federal Building, 517 Gold Avenue SW, Albuquerque, NM 87102, or call (505) 842-3292.

Oregon, Washington: 319 SW Pine Street, P.O. Box 3623, Portland, OR 97208, or call (503) 221-2877.

Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Puerto Rico, Virgin Islands, South Carolina, Tennessee, Texas, Virginia: 1720 Peachtree Road NW, Atlanta GA 30367, or call (404) 347-4191.

Rest of country: does anyone care?

Coenonycha Collecting

by David Russell

On May 5, 1990, I blacklighted at dusk for about 20 minutes in the canyon of West Fork Walker River between Mason and Smith, Nevada, in Lyon County. No beetles were found at light or on plants. I took Hwy 208 toward Smith (elevation 4460). At 2.8 road miles east of Smith on *Artemesia*, along an unused portion of the roadway, 66 *Coenonycha stohleri* were collected. The beetles were widespread but clumped: no beetles on 5-10 bushes, then several on the next few bushes. Copulating pairs were collected. I collected for 30 minutes, then continued west on Hwy 208. At 4.3 road miles west of junction of 208 and 338, just over the pass of the Pine Nut Mountains (elevation 5400) I collected 54 *Coenonycha* of an unknown species on very low (4-6 inches high) growing plants, possibly *Ambrosia*. This is the only plant around. The beetles were widespread but very clumped. You would search for 5-10 minutes to find one plant with 6-10 beetles. I collected for 30 minutes, then continued west, stopping every 3 miles back to Hwy 395 - no beetles. At 0.4 miles south of Topaz, CA, roadwork is destroying plants. Eight *Coenonycha* of an unknown species were collected, all from one *Artemesia* plant. I then collected 24 additional specimens on sage 1.5 miles south of Topaz. As I headed back for Davis, CA., I checked 4 locations up Monitor Pass (going west) but found no beetles.

Following are four localities of new or unidentified species. These locations were obtained from the UC Davis collection, the Dr. Kirk Smith collection, or from Kirk himself.

CA: Inyo Co. Big Pine, 24-IV-1982, on *Artemesia*, AAA map code M-9.

CA: Inyo Co. 3 miles south, 2 miles west of Lone Pine, 25-IV-1982, elevation 4500 feet, map code O-10.

CA: Mono Co. 1.5 miles east Toms Place, 12-V-1982, elevation 7000 feet, on *Artemesia tridentata*.

CA: Inyo Co. Gilbert Pass 24-IV-1982, map code M-10.

Coenonycha pascuensis has been a real pain to collect. In 1984 or 1985, Kirk Smith and Art Evans collected a large series of this beetle. Since that time, however, I know of only 3 specimens collected. The sight is 2.9 road miles west of Byron, in Contra Costa County, CA. The property address was formerly 540 Camino Diablo Way, but

they have changed the numbering system recently, so go by road mileage. Our last attempt was 29-III-1988. It was exceptionally warm that year and most creatures were 3 weeks ahead of schedule. The pasture was badly overgrazed, and only 2 *Coenonycha* were collected - both females outside the pasture along the road. The people living in the house on the hill (in 1988) were named Dunnster - he was a chemical rep. Be sure to check in at the house before wandering through the pasture below.

Editors' Note

Thanks for the nice work, Dave. This is definitely timely as *Coenonycha* season is upon us.

We should mention a great locality for *Coenonycha ampla*: California, San Bernardino County, vicinity of I-15, 1.5 road miles north of Oak Hills Road. This is just north of Cajon Pass. March is a good time to collect this critter on the juniper.

There is also a bug from the *Coenonycha testacea* complex to be found there on the *Eriogonum*.

Pleocomania

On November 16, 1990, at Posey, in Kern County, CA, Alex Reifschneider and his girlfriend Amy found one *Pleocoma*-less "Pleocomaniac" - Delbert LaRue, digging out a road cut. As Alex showed this Latter Day Saint of Rain Beetles his coffee can full of *Pleocoma marquai* (from Alex's blacklight trap) Delbert politely made reference to Alex being the facsimile of "phallobase." It is rare for Delbert to be outgunned, but then again, it is hard to out-collect a blacklight trap.

Delbert then counter punched when he located a *Pleocoma hirticollis reflexa* Hovore male in a *P. marquai* Hovore female burrow.

Did You Know...

That many of you are mispronouncing the name of this publication? The "B" is supposed to be pronounced twice. Frank Hovore tells us that, based upon its value and relevance, as well as his extensive knowledge of Latin, the correct and appropriate pronunciation for this letter is "Scarab B-S."

Pleocoma shastensis

by David Russell

The collecting sight I found in 1988 is 16 miles east of McCloud on Hwy 89. There is a small waterhole called Bartle. The Bartle Lodge has a couple of lights, particularly outside the bar, that attract male *Pleocoma*. Bartle is a 4 hour, 240 mile drive north of Davis, CA. As the storms begin swinging south in October I call the Bartle Lodge at (916) 964-2775 to keep abreast on current conditions. In 1988 I got 20 males on 3-XI but missed the "huge" emergence about 3 weeks earlier when the first dusting of rain hit. Only a few emergence holes were noted and "duffing" a couple of promising holes turned up no females. In 1990, a major storm hit September 24. A large number of males flew on the 24th and 25th. I arrived on the 27th to a late afternoon shower. Conditions were ideal! Numerous emergence holes were noted but no females were collected. 30 minutes before dark males started to fly in the open area across Hwy 89 from the Bartle Lodge. 12 males were collected. However, by 8:30 PM no further activity was noted. 33 additional males were collected dead from the dispenser of the Coke machine. These males unfortunately were already dried, with most of their tarsi broken off.

Whereas most *Pleocoma* need at least a couple of rains to emerge, this beetle appears to be a "first rain" rain beetle, with its numbers dropping off

significantly on subsequent rains, even on days of the same rainstorm.

Further Notes

On 24-IX-73 Barney Streit took 31 male *Pleocoma shastensis* under lights, on wet ground at Bartle, elevation 3950 feet. Two males were collected under mercury vapor lamps at Pondosa, elevation 4100 feet. The next day, at Bartle, three grubs were dug out. They were about one foot deep. Adult holes were plugged about two inches from the top, but could not be followed because the surrounding soil was too soft.

If the rainfall is "normal," the time to collect this beetle is during the first rain, which usually occurs in mid-September.

Art Evans Dept.

On Friday, December 28, 1990, the First Ever Occasional Doctor Art Evans Ph.D. Memorial Scarab Collectors Get Together was held in Sierra Madre, CA. Bob Duff came with his shovel, but Art made him put it back into his van. Jim Saulnier made a rare appearance - appreciated by all. Besides being one heck of an excellent collector, Jim is as nice of a human being as they get. We hope to get a contribution from Jim on his specialty, Aphodiinae. Everyone noticed Delbert LaRue's mouth drop open when his idol, "Mr. Pleocoma" Frank Hovore walked in.

The Art Evans Collection was the center of attention. It is so large in scope and number of specimens that people had time only to see bits and pieces of it. No kidding, folks, it is not everyday that you see a collection with 162 identified species of *Onthophagus*, 72 different *Serica*, 129 *Diplotaxis*, or 136 *Phyllophaga*. How about 23 *Polyphylla*? We are not even going to mention how complete the *Coenonycha* (Art's greatest love) section is.

The gathering finished with a discussion by Art on consistent, uniform labeling of our specimens, leading to a project (gasp!) similar to Dr. Woodruff's Florida project. Namely, we would put together a Scarabaeidae of California publication, complete with keys, maps, photographs, collecting data, and notes on biology. Next, we would move on to Scarabaeidae of Arizona, then Scarabaeidae of the New World, then The World, then Mars, etc.

A key to consistent, accurate, and thorough labeling would be a good field note form. These forms could be kept in a small notebook, and information could be checked off quickly. Each form would correspond with an identifying number on say, a glassine envelope containing the bugs. Here is a sample of a preliminary field note form:

ID#_____

Country_____State_____County_____

Location_____

_____

Life Zone_____

Date_____Time_____Elevation_____

Collectors_____

WIND: Direction_____Speed_____

PRECIPITATION: Clear Fog Drizzle Rain

FILM: Roll_____Shots_____

LIGHT: BL BLB Mercury Sodium Incandescent

TRAP: Light Dung Pitfall Flight Intercept

Beer Banana Carrion Malt

Other_____

DUNG: Human Bovine Equine Other_____

GOPHER NEST: Nesting Chamber Refuse Chamber

WOODRAT NEST: Inner Chamber Outer Chamber

Plant Host_____

Foliage Bloom Bud Twig Trunk Root

From: Burrow Soil Roadcut Sifted From Sand

Walking On Ground In Flight Mated Pair

NOTES_____

_____

_____

It is our hope to gather suggestions from all of you on exactly what the "perfect field note form" should look like. Send in your comments and suggestions. In a future issue, we will supply a full page of these forms, suitable for photocopying.

Paracotalpa ursina

Most all of us know that *Paracotalpa ursina* is a fairly common bug, flying in March and April for the most part. Presently, there is a form from the California and Nevada deserts called *leonina*. Most consider it simply a hairy, early emerging form of *ursina*, others consider it a separate species. We are now requesting any collecting reports for this interesting beetle.

There is a most intriguing, but small area on the north side of the San Gabriel Mountains akin to the Seven Level Hill Area of the Santa Rosa Mountains in Riverside County. Here, at 5000' elevation, montane flora intermixes with xeric, desert flora. It has been fairly neglected by collectors. But it was here, in Horse Canyon, along Highway 2 near Wrightwood, in January, that George Walters collected a black form of *Paracotalpa ursina* (*leonina*?) many years ago.

The males were apparently emerging from grassy areas next to large patches of snow. They flew from one patch of snow to another. When they landed on one, they would start digging, and they were collected. George found a female wherever a male landed, under the snow, about three inches beneath the surface of the underlying soil.

Sometime later, in January and February, a more typical reddish blue form of *ursina* flies. Whether these are a different species or not is unknown. Sympatric color forms of *ursina*, specifically *rubripennis* and *nigripennis*, are known from Crest, San Diego County, CA. However, these forms are found at the same time.

The taxonomy of this species is confusing, with all the variations in foodplant, body hair, elevation, locality, color, emergence period, punctation, etc. Please send us your data and observations, and we will publish them.

Announcements

The Insect Fair at the Los Angeles County Arboretum, Arcadia, California, occurs on March 23-24. There will be another Art Evans get-together on the 23rd at 5:30 PM. As always, Art says it is BYO Everything!

The Entomological Society of America meetings will be December 8-12 in Reno, Nevada. If anyone is interested in presenting a paper at an informal current Scarabaeologists meeting, notify Bret Ratcliff, University of Nebraska State Museum, ASAP, as his deadline was February 15.

Papers

Bill Warner's paper, TWO NEW NORTH AMERICAN COPRIS MULLER, WITH NOTES ON OTHER SPECIES (COLEOPTERA: SCARABAEIDAE) has been published in the Pan-Pacific Entomologist, 66(3): 232-240, (1990). In his paper, Bill describes *Copris macclevei* (Arizona, New Mexico, Sonora) and *Copris igualinsis* (Guerrero). Habitat preference and rodent inquiline habits of *C. arizonensis* and *C. macclevei* are discussed with bionomic information given for *C. lecontei*. The female of *C. mexicanus* Mathews and Halffter is described for the first time.

Definition

Ryanidae: Any fantastic-looking "Oh My!" coleoptera that requires a #7 pin. You can send any of these to John Ryan (Glendale, Arizona) for determinations!

The Robert Duff Collection

Both of your editors recently had the rare privilege of viewing the collection of Bob Duff. There were many highpoints, including large series of seldom seen Geotrups and *Ochodaeus*, as well as shovels worn to the nub, but the highlight for us was the *Ceratophyus* material. It is this species, after all, for which Bob will be remembered for generations to come, where "duffing" originated. Bob also had a nice series of adults, collected by the way, by the "Hovore Hole" method, also described in the last issue. Apparently, the "Hovore Hole" and "Hovore Hoax" are not synonymous - it really does work. A delightful and animated discussion was held discussing with the master himself how not to "zork" the specimen while duffing.

Zork, zorked and zorking are terms originally invented by Frank Hovore to depict the unfortunate circumstance of driving a pick axe through a rain beetle while either duffing or digging out a visible burrow. They have now taken on a more universal meaning pertaining to the ruination of any good beetle, by any means.

Bob's literature collection is just this side of extraordinary. Many excellent photographs were seen, as Bob has an ongoing interest in photography. Bob has a collection of photographs of Geotrup burrows of many species the authors have rarely seen. Given the mysterious, secretive nature of these bugs, this is incredible.

The day had an unfortunate ending, however, after we left Bob's home...

Both editors mentally compared their own feeble collections and negligible accomplishments to Bob's. Was any famous collecting technique named after them? Ever heard of, for instance, cunninghaming?

Both editors then realized that, as collectors, naturalists, and as human beings in general, they were duds. Both left with heads hanging low. Rich went home to plan his next (17th) *Phobetus panamentensis* assault, and to proudly gaze upon his highly-prized *Diplotaxis* collection (3 specimens, 2 species, total), while Barney went out somewhere, with his hydrogen-powered titanium stealth laser-guided smart Scarab trap, looking to add the ever-elusive *Aphodius lividus* to his collection. He struck out, again...

Future Issues

May well contain a Wife's/Girlfriend's Corner. This may contain anything pertaining on how to get along with females and still collect bugs - no small trick these days.

One small anecdote may be in order. Recently, co-editor Barney was present at dusk at Ball Flat to see if *Pleocoma octopagina* would fly. He had a net, as did his girlfriend, Sheila, who had never even used a net before. It was quiet, drizzling, wet, and cold. A male bounced along the fence and then darted up the brushy hillside. Barney pointed his balding, fat head down to his rotund, overweight belly, and said to himself "No way am I going after that bug." He looked up to see Sheila motoring up the steep, slippery hillside in hot pursuit of the same fast-flying rain Scarab. She disappeared into the darkening mist. Quite later, Barney, still without a kill, saw her triumphantly clamber down the hill, with a nice male in her net. Not a bad trophy for your first swing of the net!

Next Issue

Banana traps, flight intercept traps, a checklist of California Scarabaeidae, collecting reports, and other neat stuff.

As always, we need your notes, observations, and collecting reports.