



Scarabaeus

A NEWSLETTER FOR THOSE INTERESTED IN SCARABAEIDAE

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NOTES ON PLEOCOMA LEC. PT. I

Winter is historically a time when entomologists can relax, write papers, and devote the cold insectless nights to the pleasures of curating, identifying, and admiring the spoils of the season past. For both collectors and collectees, it is a welcome hiatus.

However, for Coleopterists living along the Pacific Coast, there is a second, winter "season", wherein certain groups of scarabs (and other insects) are active and available during even the worst of winter weather. Numerous species of Aphodius, Ataenius, Phobetus, Diplotaxis, and Coenonycha are winter-active, with the cream of the "off-season" crop being the "Rain Beetles" of the genus Pleocoma LeConte. Pleocoma are large (17-28 mm (males); 23-24 mm (females)), with a shining integument, densely pubescent ventral surface, and the clypeus modified into a scoop-shaped (usually bifurcated) fossorial process.

There are about 30 described species and subspecies (a number which will no doubt change with further taxonomic refinement), colonially distributed from the Oregon/Washington border south to extreme northern Baja California. All of the species share the habit of emerging, mating, and dispersing during the period of winter precipitation. Depending upon the species and locality, and under "normal" precipitation patterns, adult activity may occur from late September (in "early" species such as P. fimbriata, marquai, minor, australis, etc.) to late March (as in crinita, hoppingi, rubiginosa, and certain populations of linsleyi, octopagina, and badia). Unusually late rainy seasons may delay emergence of "early" species until well beyond their normal dates, but early winter weather does not seem to induce premature emergence of later species--this despite the fact that the "late" populations transform and are potentially available on the same schedule as the early species.

Clearly, the stimulus to emerge is not simply a 1:1, "it's raining: let's emerge" response to a single environmental phenomenon; rather, each species appears to initiate above-ground activity according to a complex of external and internal stimuli. Given the variable nature of overall population behavior, and the out-of-phase emergences displayed by a number of species, it is probable that the set of stimuli is fairly broad, and probably differential at either the species group, species, or population level.

Once the actual emergence from the pupal cell has taken place, and activity has commenced, adult males will either secret themselves beneath leaf debris or dig shallow "resting" burrows in the soil; females merely break the surface, emit their pheromones, mate and return to the depths. Males will reappear and fly under a

variety of climatic conditions--including warm, sunny afternoons, sudden downpours, and snowstorms. Attempts at monitoring environmental conditions during activity periods have, needless to say, been complicated by the relative inaccessibility of most populations and the unpredictability of the flights. The heaviest flights of most species occur shortly before dawn, during, or just after precipitation, with shorter, smaller flights at dusk. A few species characteristically fly whenever it is raining, and may be collected at any time of night, while P. hirticollis ssp., P. rubiginosa transsierrae and P. crinita have been taken rather commonly during diurnal flights. Males are strongly attracted to light, and may be attracted in large numbers to blacklight.

There is no apparent correlation between color, size or antennomeres and flight behavior, and any population or individual may exhibit idiosyncratic tendencies. Males of P. badia hersuta have been observed to fly before but not during a storm, during snowmelt, during hailstorms, on a clear, cold, windy night, on a clear, warm, windy afternoon, and at 4:00 p.m. on a partially sunny day during a freak rain squall. And they have been "observed" to not fly during ideal rainy weather on the middle day of a three-day storm during which they flew on days one and three!

In Part II of this discussion, I hope to cover some of the problems inherent in Pleocoma taxonomy, and to provide some data which might prove helpful in searching for as-yet-undiscovered populations. It is my intent to keep these reports conversational in tone, and to present some of the unpublished (and not likely to be published) information in the hopes of recruiting new "Pleocomaniacs". I welcome any comments or inquiries regarding the genus or these reports.--Frank T. Hovore, Placerita Canyon Nature Canyon, 19152 W. Placerita Canyon Road, Newhall, California 91321, (805) 259-7721 (9-5).

MORE ON CERATOCANTHUS

After our note (Scarabaeus #2) on this genus, R. Westcott, Oregon State Department of Agriculture, writes that:

"I collected at least seven of these critters on a warm night. The collecting site was hardwood hammock that was being cleared, and slash was piled and laying about. The beetles were found crawling on the surface (top) of several logs. I can't recall what species of tree, but it seems to me that the wood was not rotten--in fact, probably rather recently felled.

If this critter turns out to be the new species that Woodruff surmised he had from Key Largo, then it should be kept in mind that I have more specimens."

The note was accompanied by a specimen bearing data: FLORIDA, Monroe Co., Plantation Key, XII-5-1970, collected at night on slash pile.

NOTICES

WANTED - Cremastocheilus, will identify, trade. Gary D. Alpert. MCZ Labs, Harvard University, Cambridge, MA 02138.

WANTED - Exchanges for Eastern U.S. Scarabaeidae, esp. Aphodiinae, Diplotaxis, Serica, Phyllophaga. Alan Hardy, 1220 "N" Street, Room 340, Sacramento, CA 95814.

LISSOMELAS FLOHRI BATES

Lissomelas flohri is a rarely taken Cremaetocheilini, notable for its large size (about half again as long as a large Cremastocheilus). Originally described from Mexico (Ventanas in Durango, and Mexico City), the species has also been taken in Arizona, but evidently rarely. In some cases (the Mexican records) they appear to be locally abundant, with series reportedly collected. The circumstances of the first recorded record for the U. S. were reported in the Proceedings of the Entomological Society of Washington in 1867 (pp. 209-210), which is reprinted below in its entirety, as being of interest for observations on the fate of the Arizona wilderness.

—Mr. Schwarz exhibited a specimen of the Scarabæid *Lissomelas flohri* Bates, a genus new to the United States, and allied to *Cremastochilus*. The specimens collected by Mr. Hubbard at Ft. Grant, Ar., however, were not found in ants' nests, but under old leaves, nor could any traces be found of thoracic glands, which are supposed to be attractive to ants. He spoke of the velvet-like coating on the rear half of the elytra, and said that in the specimens collected it was badly scratched, possibly by ants. He further generalized as to the Arizona fauna, stating that we do not know its Mexican limits, and remarked upon the great variation between the faunas of the valleys and of the mountains.

Mr. Fernow thought that this great difference was due entirely to moisture changes. In Arizona, wherever an elevation of 5,000 feet is reached, there is rainfall and forests which are lacking at a lower elevation. Dr. Gill stated that the segregation of the Coleopterous fauna of California had been remarked upon 40 years ago by LeConte. Mr. Schwarz stated that LeConte did not go into the mountains of Arizona, and, in fact, failed to realize the difference between the California and Arizona faunas, because he was there in the winter-time. It is high time to explore southern Arizona from a biological standpoint, since cattle are fast doing away with the vegetation of the valleys and the mountain canyons, which will soon become deserts. In this statement he was supported by Mr. Fernow, and some further discussion ensued between Messrs. Fernow and Schwarz as to the character of the vegetation of Arizona, and its influence upon insect life. Mr. Ashmead confirmed Mr. Schwarz's statement as to the great richness and value of the collections made by Mr. Hubbard in southern Arizona.

Fort Grant is in Graham County near Safford. Several additional specimens have been reported. One specimen in the U. of Arizona collection was reportedly (F. Werner) brought in by citizens who had collected it hanging on a sheet on a clothesline at Cochise, Cochise County, Arizona (in the Dragoon Mountains).

Other specimens are in the possession of M. Cazier. He reports one specimen from the Santa Rita Experiment Station in Pima County, Arizona, taken July 1, 1970 at 4400' in the Oak-Mesquite Zone, and another from the Sierra Ancha Experimental Forest, Graham County, taken September 5, 1969 under a rock. It would be of great interest to discover more of the life history of this rare beetle.

SERICA

For some time there has been a hint that European workers were convinced N. American Serica were really assignable to a number of old-world genera. The first step in this direction was recently made by Nickolajev (1979:191), who has transferred Serica alternata Le Conte to Maladera (Paramaladera, n. subgen.) (See Recent Literature).

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Of the approximate 100 species of Serica recorded from the United States, there are reliable published hosts for less than 10 percent!!

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