

## THE GROUND BEETLE COMPONENTS OF THE PANAMANIAN FAUNA

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The attached data constitute a partial summary of information we have gathered on the ground beetles of Barro Colorado Island. This information is stored on mag-tape in SELGEM format in Washington. Data capture and computer expenses for FY-74 were mostly covered by ESP money. Additional material and field notes are now being processed which will more than double the 1300 specimen records analyzed here. This process will also be funded by FY-74 ESP money.

In addition, during June and July 1973, considerable progress was made on natural history studies on BCI carabids, particularly arboreal (under-story) and fungus-associated forms.

An extensive carabid natural history paper is now in preparation and will be completed after two or three weeks more on the Island in 1974. One exciting aspect of this paper is our hypothesis and evidence on the development and evolution of ectoparasitoidism in carabid beetles. This hypothesis is based on life cycle work done on the Island by us last year and elsewhere by us in 1963.

We are now in a position of knowing the carabid fauna of BCI well enough to expand our natural history studies and to begin participating in interdisciplinary ecological studies where carabids are important. One such study is that of the evolution of Neotropical salamanders (David Wake) where we are studying gut contents (carabids and other beetles) and will tell Dr. Wake where the salamanders are ranging based on carabid habits. A second study is now being proposed to NSF by Drs. Schoener and Wilson and will deal with character displacement in arthropods (carabid beetles). Part of this last study will include carabid beetles of BCI, where we expect to train Dr. Wilson in carabid natural history.

In summary, we have reached a point in our knowledge of Panamanian carabids where we can focus on particular biological aspects in the field and continue writing our systematic "Fauna of Central America" in Washington.

Figure T-59. Ground beetles of Barro Colorado Island  
(Coleoptera: Carabidae)

Taxa	Number of species	Habitat	Food preference/ host
<u>Cicindelini</u>			
<u>Cicindela</u>	2	Lake shore	Gen. pred.
<u>Ctenostoma</u>	4	Arboreal	Pred. ?
<u>Iresia</u>	1	Arboreal	Pred. ?
<u>Megacephala</u>	1	Lake shore	Pred. ?
<u>Odontochila</u>	2	Forest trails	Pred. ?
<u>Prepusa</u>	1	?	?
<u>Paussini</u>			
<u>Homopterus</u>	2	Ant nests	?
<u>Ozaenini</u>			
<u>Goniotropis</u>	4	In dead trees	?
<u>Pachyteles</u>	11	Under bark	?
<u>Physea</u>	1	Ant nests	?
<u>Platyceerozaena</u>	2	In dead trees	?
<u>Scaritini</u>			
<u>Ardistomis</u>	2	Bog, streamside	?
<u>Clivina</u>	3	Forest and lakeshore litter	?
<u>Oxydrepanus</u>	1	Lakeshore litter	?
<u>Schizogenius</u>	1	Streamside	?
<u>Bembidiini</u>			
<u>Pericompsus</u>	1	Lake shore	Pred. ?
<u>Xystosomus</u>	2	Log runner	Pred. ?
<u>Morionini</u>			
<u>Morion</u>	3	In dead trees	Pred. ?
<u>Moriosomus</u>	1	In dead trees	Pred. ?
<u>Pterostichini</u>			
<u>Abaris</u>	1	Forest litter	Pred. ?
<u>Colpodes</u>	4	Log runner	Pred. ?
<u>Cratocerus</u>	1	In dead trees	Pred. ?
<u>Euphorticus</u>	1	Lake shore	?
<u>Calybe</u>	1	Lake shore	?
<u>Lachnophorus</u>	2	Lake shore	?
<u>Loxandrus</u>	10	Forest litter	Pred. ?
<u>Platynus</u>	3	Forest litter	Pred. ?
<u>Oodini</u>			
<u>Anatrichis</u>	1	Lake shore	Pred. ?
<u>Perigonini</u>			
<u>Diploharpus</u>	1	Forest litter	Pred. ?
<u>Perigona</u>	6	Forest litter, decaying vegetation	?

Taxa	No. species	Habitat	Food pref./host
<b>Harpalini</b>			
<u>Acupalpus</u>	1	?	?
<u>Amplygnathus</u>	1	?	? Seeds
<u>Arthrostictus</u>	2	Domestic	?
<u>Barysomus</u>	1	Domestic	? Seeds
<u>Gynandropus</u>	1	Decaying vegetation	? Seeds
<u>Notiobia</u>	4	Forest litter	Seeds
<u>Petmatellus</u>	1	?	Seeds
<u>Selenophorus</u>	8	Forest litter, domestic	? Seeds
<b>Pelecini</b>			
<u>Pelecium</u>	1	Forest litter	Pred. on millipedes
<b>Masorini</b>			
<u>Masoreus</u>	2	Lake shore	?
<b>Lebiini</b>			
<u>Apenes</u>	16	Forest litter	Pred. ?
<u>Aspasiola</u>	1	Shelf fungi	Pred. ?
<u>Axinopalpis</u>	1	Sparse litter	Pred. ?
<u>Calleida</u>	8	Arboreal	Pred. ?
<u>Catascopus</u>	1	Log runner	Pred. ?
<u>Coptodera</u>	7	Log runner	Pred. ?
<u>Cylindronotum</u>	1	Arboreal	?
<u>Epikestia</u>	1	<u>Attelea</u> blossoms	?
<u>Eucaerus</u>	1	?	?
<u>Eurycoleus</u>	2	Shelf fungi	Pred. on fungus beetles
<u>Hyboptera</u>	1	Shelf fungi	?
<u>Lebia</u>	19	Arboreal	Pred. on leaf beetles
<u>Lelis</u>	2	Bracket fungi	?
<u>Lia</u>	3	Arboreal	?
<u>Metabletus</u>	1	Sparse dry litter	?
<u>Nemotarsus</u>	1	Arboreal	?
<u>Onota</u>	1	Shelf fungi	Pred. ?
<u>Plochionus</u>	1	Arboreal	?
<u>Pseudotoglossa</u>	1	Shelf fungi	?
<u>Stenoglossa</u>	2	Log runner	Pred. ?
<u>Stenognathus</u>	2	Log runner	Pred. ?
<b>Pentagonicini</b>			
<u>Pentagonica</u>	6	Decaying vegetation	?
<b>Agrini</b>			
<u>Agra</u>	22	Arboreal	?
<b>Colliurini</b>			
<u>Calophaena</u>	3	<u>Heliconia</u> leaves	?
<u>Colliuris</u>	2	Grass	?
<b>Galeritini</b>			
<u>Galerita</u>	1	Domestic	Pred. ?

Taxa	No. species	Habitat	Food pref./host
Zuphiini			
<u>Pseudoptinus</u>	2	Forest litter	?
Helluonini			
<u>Helluomorphoides</u>	2	Forest litter (? With <u>Atta</u> )	?
<u>Pleuracanthus</u>	1	? with ants	?
New genus	1	? with ants	?
Eucheilini			
<u>Inna</u>	1	?	?

Totals: Tribes, 20; genera, 71; species, 212

Analysis of Carabid Fauna on BCI by Genus (based on 1300 specimens)

Habitat:

Arboreal . . . . .	22.5%		
Terrestrial. . . . .	39.4%	Terrestrial:	
Unknown. . . . .	5.6%	Forest litter	57.1%
*Decaying wood. . . . .	16.9%	Riparian/lake shore	42.9%
Decaying vegetation. . . . .	4.2%		
Fungi. . . . .	8.4%		
Domestic . . . . .	5.6%		
With ants. . . . .	7.0%		

Food Habits:

Predaceous . . . . .	40.8%
Herbivorous. . . . .	8.4%
Unknown. . . . .	50.8%

Analysis of Carabid Fauna on BCI by Species (based on 1300 specimens)

Habitat:

Arboreal . . . . .	39.6%		
Terrestrial. . . . .	35.4%	Terrestrial:	
Unknown. . . . .	2.8%	Forest litter	73.3%
*Decaying wood. . . . .	18.9%	Riparian/lake shore	26.7%
Decaying vegetation. . . . .	6.1%		
Fungi. . . . .	3.8%		
Domestic . . . . .	1.9%		
With ants. . . . .	2.8%		

\* Log runners also scored as arboreals.