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Cordulecerus is a small genus of owlflies (Penny, 1977, 1981) widely distributed throughout the tropical lowland forests of Central and South America. They are fairly large (forewing length, 23-39 mm), dark brown insects with variously maculate wings; the hind pair in males differ markedly from those of females both in shape and pigmentation pattern. The authors report for the first time aggregations of two species in localities adjacent to the main Amazon River channel in Peru and Brazil, and one further aggregation in the Dominican Republic which raises interesting phylogenetic problems.

Near Iquitos, Hogue observed during the late morning, clusters of **C. maclachlani** Selys on the tips of pendant tree branches (Fig. 1), over small blackwater streams a short distance removed from the main river channel. The clusters were approached easily by boat, the insects showing no agitation or tendency to disperse, and were easily netted, being only about two meters above the water's surface. Owing to the escape of many individuals from the net, it was not possible to count the number of specimens with accuracy in two sightings, but numbers were estimated to be between 30 and 40. Both sexes were present, with males predominating. No copulating pairs were seen. Specimens were preserved and identified by Penny; accompanying data were: Yarina Canal separating Yarina Island, near Sucusari, Rio Napo, 30 June 1980; and Rio Papaya, near Negro Urco, Rio Napo, 20 July 1982. A thirty cluster was seen in the Yarina Canal site on 13 July 1985. and in contained 11 males and 10 females.

Another aggregation was seen by Dr. Dodge Elgleman at Reserva Ducke, 27 km north-east of Manaus, Amazonas, Brazil, at about dusk on 14 March 1977. Twenty-four individuals of **C. elegans** Weele were seen clinging to the end of a drooping tree branch in an upland, primary forest near Barro Colorado Creek, some 15 km from the Amazon River. As with the other sightings, the owlflies were not active, and all were captured with one swing of an insect net. Of the 24 individuals captured, five were males, and no mating was seen.

One final aggregation of ascalaphids was seen by a group of entomologists led by Lionel A. Stange at Haina, Distrito Federal of the Dominican Republic at about 5:15 p.m. on 18 May 1985. More than a hundred adults began a frenzied flight in a small area when

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bushes were disturbed in a field at the edge of a tropical forest (Stange, personal communication). A local entomologist indicated that he had seen "sleeping" ascalaphids from time to time in the same general area. These ascalaphids were identified as **Ululodes villosus** (de Beauvais, 1805). In his 1908 revision of Ascalaphidae, Weele indicated that this species forms a link between **Ululodes** and **Corduleceres**. So far, this behavioral trait has not been found in any other of the widespread and numerous species of **Ululodes**. Because of the present behavioral evidence, it may be that **U. villosus** belongs to the genus **Corduleceres** and morphological criteria need to be revised. Or alternatively, perhaps these two groups do not both merit generic rank. At present, there is not enough evidence to make such a decision.

The significance of those aggregations remains unexplained. Because in each instance it occurred during the day, aggregate sleeping is a possible purpose in these crepuscular or nocturnally active insects. So far, this behavior is known only from this one genus in the family (with this one noted exception), and concentrations of adult neuropterous insects have been recorded from only a few families. Riek (1974) mentions very large aggregations of Australian Ithonidae in such numbers that individuals hitting a tin roof at dawn "made a noise like a hailstorm". "Plagues" were known to last for as long as three weeks. The North American ithonid **Oliarces clara** Banks in recent years has been sighted in large swarms in the desert areas of southeastern California (D.K. Falukner and E. Sleeper, personal communication).

Aggregations of **Polystoechotes punctatus** (Fabricius) have also been recorded. Fyles (1903, extracted from Carpenter, 1940) reported "the occurrence of a cloud of these insects above a warehouse in Ontario; the aggregation was so dense that observers mistook it for smoke and called out the fire-engine".

There is probably no phylogenetic significance to aggregation within these families, as the Ithonidae and Polystoechotidae are often placed at the base of proposed cladograms, retaining many plesiomorphic characters, while the Ascalaphidae is clearly placed within the Myrmeleontoidea, with many morphological modifications. However, within the Ascalaphidae we have five sightings of aggregations, all from one closely-related group. Thus, this behavioral trait may help elucidate phylogenetic relationships within the family and should be investigated further.

RESUMO

Aggregações de Ascalafídeos estão sendo descritas pela primeira vez. Estas agregações foram vistas somente no gênero **Corduleceres**, perto da Iquitos, Peru; na Reserva Ducke, 27 km noroeste de Manaus, Brasil; e na espécie **Ululodes villosus** na República Dominicana. Este último exemplar levanta perguntas sobre a separação destes dois gêneros. Fora deste grupo, as concentrações de Neuroptera são conhecidas somente em Ithonidae e Polystoechotidae.



Fig. 1. Aggregation of *C. maclachlani* near Iquitos, Peru.

References

- Carpenter, F. M. - 1940. A revision of the Nearctic Hemeroibiidae, Berothidae, Sisyridae, Polystoechotidae, and Dilaridae (Neuroptera). **Proc. Amer. Acad. Arts Sci.**, 74 (7): 193 - 280.
- Penny, N. D. - 1977. Lista de Melaloptera, Neuroptera e Raphidioptera do México, América Central, Ilhas Caraíbas e América do Sul. **Acta Amazonica**, Supl., 7(4): 1 - 62.
- - 1981. Review of the generic level classification of the New World Ascalaphidae (Neuroptera). **Acta Amazonica**, 11(2): 391-406.
- Riek, E. F. - 1974. The Australian moth-lacewings (Neuroptera: Ithonidae). **J. Austr. Ent. Soc.**, 13: 37 - 54.
- Weele, H. W. van der - 1908. Ascalaphiden. Monographisch Bearbeitet. **Coll. Zool.E. de Selys Longchamps**. 326 p.

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