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Eleodes in Iowa

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or because of local topography and changes in temperature, and the comparative abundance of vegetation, especially of trees, would locally very much modify any effect which might result from general causes.

The finer sub-soils in the groves of the drift area are indistinguishable from loess, though quite thin, and the amount of such deposits especially in the northern part of the most recent Wisconsin drift area will be greater as the region becomes drier, or as the number of groves increases,—though cultivation will no doubt affect the distribution and amount of the deposit.

It, therefor, appears that the facts herein presented are consistent with the theory of the æolian origin of the loess. However, the author desires that these facts and their relation to prairie formation stand upon their own merits, the application being a purely incidental after-thought.

ELEODES IN IOWA.

H. F. WICKHAM.

The genus *Eleodes* contains certain species of beetles belonging to the family Tenebrionidæ. They are terrestrial and cursorial, rarely being found on plants of any size, though a few are known to ascend the stems of shrubs. All are of large or medium size, and devoid of functional wings, the elytra being connate, forming a perfect shield which clasps the sides of the body. The integument is very thick, and forms, in connection with this elytral structure, an efficient protection from desiccation. Repugnatorial glands are present, secreting a powerful caustic fluid which is discharged through the anus when the insect is irritated. In order to protect themselves more efficiently they elevate the posterior portions of the body when alarmed, and run off in that position. Probably it is this habit which has suggested the name "circus bugs," often applied to them in the west.

From their abundance, both in species and individuals, they form a most characteristic feature of the arid regions of the west, their recognized range extending from the Missouri river to the Pacific ocean.

In view of their known habits and distribution, I was much interested in finding a number of specimens among the beetles

recently brought back from northern Iowa by Prof. B. Shimek. Adding to the records thus established, a few others gathered from various sources, I present the following note, showing the distribution of the genus within the state as far as ascertained:

Eleodes suturalis Say. Taken in Lyon Co. (June) by Professor Shimek. Western Iowa (Professor Macbride).

Eleodes tricostata Say. This has been taken at Ames, by Professor Osborn, while Professor Shimek has given me specimens from Lyon Co. (June); eastern Emmet Co. (August); southern Dickinson Co. (August), and eastern Woodbury Co. (September). It extends as far east as Independence, Buchanan Co., where I found it in September, on a broad, dry sand-flat, along the Wapsipinicon bottom.

Eleodes opaca Say. From Lyon Co., June, Professor Shimek.

As far as my information goes it indicates that the habits of the Iowa specimens do not differ from those of western forms. The beetles are to be seen walking about on roads or other open spots in the cool of morning, and again towards evening. The heat of day drives them to shelter.

THE SCYDMÆNIDÆ AND PSELAPHIDÆ OCCURRING NEAR IOWA CITY, IOWA.

BY H. F. WICKHAM.

The minute beetles belonging to the above families have been much neglected by collectors, although their many peculiarities of habit and structure make them well worthy of attention. For three years past my wife and I have collected them systematically in this vicinity, with the result of very largely increasing the list of species known to occur here.

They seem to be most numerous in the spring, though some may be found during the summer months and many in the autumn, or even throughout the winter. Remarks on the situations most favored by them will be found in the proper places. The classification is that used by Capt. Thos. L. Casey, in his recent papers on the subject. Great assistance in their study has been rendered me by Captain Casey and by the Rev. P. Jerome Schmitt.

FAMILY SCYDMÆNIDÆ.

Euconnus bicolor Lec. Our most abundant species, at times swarming in swampy spots along streams where debris has