

PROCEEDINGS.

113

JANUARY 2, 1896.

President Ashmead in the chair and the following members also present: Messrs. Schwarz, Benton, Heidemann, Marlatt, Pratt, Hubbard, Howard, Gill, Sudworth, Stiles, and Waite.

The election of officers for 1896 resulted as follows: President, C. L. Marlatt; vice-presidents, Theodore Gill and H. G. Hubbard; recording secretary, L. O. Howard; corresponding secretary, Frank Benton; treasurer, E. A. Schwarz; additional members executive committee, W. H. Ashmead, D. W. Coquillett, C. W. Stiles. At the conclusion of the election President-elect Marlatt took the chair and acknowledged in a few remarks the honor done him.

Mr. Schwarz presented the following paper:

SEMI-TROPICAL TEXAS.

By E. A. SCHWARZ.

In the year 1879 I had an opportunity of becoming acquainted with the insect fauna of the vicinity of Columbus, Texas, on the lower Colorado River. The fauna at this point, both of the densely wooded river valley as well as of the adjoining more elevated prairies, is but little modified from the austroriparian fauna of Louisiana. West of the Guadalupe River a change in the character of flora and fauna gradually takes place, owing to the greatly diminished amount of rainfall. This is southwestern Texas, or more properly the low-lands of western Texas, and south of the Nueces River the characteristic features of this region attain their highest development. With the insect fauna of this region I became tolerably well acquainted the past year, during the investigation of the Mexican cotton-boll weevil (*Anthonomus grandis*), carried on by the U. S. Department of Agriculture. It differs essentially from that of Columbus, Tex., but also, though in a lesser degree, from the fauna of the higher plateaus of Texas north and northwest of San Antonio. Still, southwestern Texas belongs, at least as far as the insects are concerned, to the lower Sonoran fauna, of which it forms a marked

subdivision,* but with marked affinities to the austroriparian region.

The valley of the Rio Grande nowhere forms a natural dividing line, and the flora and fauna of southwestern Texas extend into the State of Tamaulipas—how far south, I am unable to state. The explorers of the Mexican fauna have entirely neglected this region, and only a few representatives thereof are recorded in the *Biologia Centrali-Americana*.

That a number of genera and species of animals belonging to the neotropical region extend northward along the tierra caliente of eastern Mexico and cross the Rio Grande into Texas has long since been recognized, but since nothing definite regarding the exact extent of the region where this tropical fauna is to be found north of the Rio Grande seems to be known, at least so far as the insects are concerned, I venture to place on record a few observations made by myself during a very short visit to the lower Rio Grande in June, 1895.

Collections made at Laredo, San Diego, Corpus Christi, and in the lower Nueces river valley prove that, with few exceptions, no tropical forms occur in that section, and the trip on the stage from Alice to Brownsville shows that the character of the country does not change southward until the black alluvial soil of the delta of the Rio Grande is reached. Here, within the bends of the river, as well as along the various backwaters and old river arms (resacas) which dissect the delta, isolated areas or strips of larger or smaller extent are covered with a dense forest having thick undergrowth of varied shrubbery and a rich vegetation of lower plants, the like of which is not seen at any other place in southwestern Texas. These forest jungles (in Florida they would be called hammocks) are the home of the semi-tropical insect fauna of Texas, which, so far as known to me, has, previous to the year 1895, never been investigated by any entomologist, since even many of the most abundant species are either entirely new or not yet recorded from the United States. If, confining myself to Coleoptera found by Prof. Townsend or myself near Brownsville, I mention the genera *Agra*, *Dasydactylus*, *Physorhinus*, *Achryson*, *Gnaphalodes*, *Amphionycha*, *Megascelis*, *Plectrotreta*, *Brachycoryne*, *Listronychus*, *Polybria* (quite a number of others are not yet determined, or undescribed), no one can deny the existence of a semi-tropical insect fauna along the north bank of the lower Rio Grande. The number of species composing this fauna is very large; in Coleoptera alone I estimate that, after proper ex-

* Prof. E. D. Cope, in his paper "On the Zoological position of Texas" (Bull. 17, U. S. Nat. Museum, 1880), calls this region the "Texas district of the austroriparian fauna."

ploration, between 300 and 400 species will be added to our lists.

As stated above, these semi-tropical thickets occur in isolated patches in the lowest parts of the delta; wherever the ground is a little more elevated, the usual mesquite and spiny chaparral, liberally interspersed with *Opuntias*, make their appearance, and with them the general fauna of southwestern Texas.

To any one coming from the north into this region it becomes at once evident that the Arroyo Colorado, which is the northernmost of the old arms of the Rio Grande, forms the northern boundary of the semi-tropical flora and fauna, while, from information received from Prof. Townsend,* they extend up the river to the head of the same arroyo, or, at most, to the town of Edinburgh (Hidalgo). Toward the coast, the peculiar *Yucca*-covered ridges form a characteristic feature of the country, and, no doubt, harbor semi-tropical insects. Finally, the maritime fauna of the delta is semi-tropical and probably extends north of the mouth of the Arroyo Colorado as far as Corpus Christi Bay. In what way the semi-tropical fauna is continued southward through the State of Tamaulipas I am unable to state.

The area thus circumscribed within the political boundaries of the United States is extremely small, in fact much smaller than that occupied by the semi-tropical region of Florida or Baja California. Like the Floridian region, the Texan semi-tropical flora and fauna are doomed to almost complete extinction by the progress of agriculture, and already at the time of my visit flourishing sugar-cane fields and corn-fields covered the major part of the area once occupied by the semi-tropical forest.

The paper was briefly discussed by Messrs. Gill, Ashmead, Waite, and Howard. Dr. Gill said that Mr. Schwarz's observations on the extremely limited character of this fauna in Texas agreed with his own deductions from a study of fishes. Fresh-water fishes, he said, were extremely well adapted for faunal distribution studies, on account of their necessary restrictions. We have, in the vicinity of Brownsville, our only representatives of certain characteristically tropical families of fishes, namely, *Astyanax* and *Heros*. Mr. Ashmead spoke particularly of the Sonoran fauna of southern Texas, and said that, from his examina-

* See also Dr. V. Havard's paper on the flora of western and southern Texas (Proc. U. S. Nat. Mus., VIII, 1885, p. 449-533).



Schwarz, Eugene Amandus. 1896. "Semi-tropical Texas." *Proceedings of the Entomological Society of Washington* 4, 1-3.

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