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NOTES ON ROBBER FLIES FROM SOUTHWEST
TEXAS, COLLECTED BY THE BRYANT WALKER
EXPEDITION, WITH A DESCRIPTION OF
A NEW SPECIES OF ERAX

BY JAMES S. HINE

The material considered in this paper consists of some 130 specimens collected fortuitously by Mr. F. M. Gaige on the Bryant Walker Expedition from the Museum of Zoology, University of Michigan, in the Trans-Pecos region of Texas in 1916. Eighteen species are represented in the collection, which taken as a whole is characterized by the large size of the majority of the specimens. It is seldom that a small collection contains so many species of special interest. Mr. Gaige's statement regarding the locality which the expedition visited will give an understanding of the conditions under which the collection was made.

"The region worked is situated some forty miles south and slightly west of Pecos, the nearest town being Toyahvale.

Most of the region is drained by Toyah Creek, which in turn empties into the Pecos River. Part of the work was done in the arid sage lands, the typical west Texas country, and a part in the edge of the Davis Mountains which bound the region studied on the south and west. The vegetation of course is scanty, and as the expedition encountered a very severe drouth, this condition was strongly emphasized. The all prevalent bush is the catclaw acacia, while greasewood, devil thorn and sage, with a few willows and cottonwoods along the larger arroyas and about the few springs, furnish most of the balance. In the mountains small oaks and a few other trees occur at low elevations. Much of the land is quite bare, there are large outcrops of limestone and some igneous rocks, while everywhere, save in a few of the wider valley bottoms, the soil is shallow and stony.

"The collection of robber flies was made very casually. I was in the region primarily for the Formicidæ, and incidentally collected a considerable number of other Hymenoptera. This led to a more or less careful search for bees, and the continual harassing which they received at the hands of these predaceous Diptera led to the making of the very informal collection of the latter."

LIST OF SPECIES

Microstylum morosum Loew.—This species is variable in color from black to light brown. Some authors use the specific name *pallens* for the brown specimens. Both extremes and intermediate specimens are represented in the collection, so there appears to be no satisfactory way of placing them in two species. It seems advisable to consider all specimens as belonging to one variable species. The large size, nearly 50 millimeters in total length, the uniformly dark colored wings and closed first posterior cell characterize the species, which

is an important enemy of the various insects upon which it preys.

Microstylum galactodes Loew.—This species is somewhat smaller than the preceding, with the abdomen black and the wings white. The type locality is Pecos River, Texas; it has also been taken in several places in Kansas.

Saropogon dispar Coquillett.—Three specimens. This species closely resembles some members of the genus *Deromyia*, but the fourth posterior cell is open and each antenna has a short style. Length about 30 millimeters.

Deromyia ternata Loew.—Three specimens. The fourth posterior cell is closed and petiolate; thorax with prominent black stripes separated by gray stripes and abbreviated anteriorly. The specimens are larger than usual, having a total length of 26 to 28 millimeters.

Proctacanthus arno Townsend.—One female specimen appears to be of this species, but the specimen is teneral and therefore not fully colored.

Erax anomalus Bellardi.—One male and three females. All have three submarginal cells and clearly belong to this species.

Erax argyrosoma Hine.—The species of *Erax* that belong to the group in which the male has long white hair on some of the abdominal segments parted in the middle and directed outward are common in arid regions. This species is represented by numerous specimens of both sexes. The wing has only two submarginal cells, of which the second is much more than half the length of the first.

Erax albibarbis Macquart.—Numerous specimens of both sexes. Considered in the light of recent synonymy, this is the most abundant and widely distributed species of *Erax* in this country, for its range is from the Atlantic to the Pacific and

from Guatemala and even further south to Canada. The specimens in this collection are above average size.

Erax tuberculata Coquillett.—The male of this species has three prominent tooth-like extensions on the ventor of the abdomen; size rather small and slender; second submarginal cell of wing much less than half as long as the first. The female is like the male but without the ventral extensions on the abdomen. Three specimens. The type material of the species was procured at San Diego and Brownsville, Texas. Coquillett's description was published in the Journal of the New York Entomological Society, 1904, Volume XII, page 34.

***Erax armatus*, new species.**

Description: This is a rather robust, dark colored species, in large part covered with gray pollen; the legs are generally black, but all the tibiae are red on basal two-thirds to three-fourths. Mystax pale yellow, wings hyaline, second submarginal cell short, much less than half as long as the first. Thorax gray, with some narrow longitudinal markings. Length including genitalia, male 30 millimeters, female 32 millimeters.

Male.—Costa slightly thickened at about two-thirds of the distance from the base to the apex of the wing. Hind tibia with a triangular enlargement posteriorly near its middle. First abdominal segment gray, second gray at the sides and behind, leaving a large black triangular spot with its base on the black spots are smaller and more rounded; sixth segment like second, except that the black spot on the sixth is much reduced; seventh segment uniformly gray. Hypopygium large, black and clothed with black hair.

Female.—Costa not thickened. Hind tibia not modified. First five abdominal segments colored much as in male, but the black spots are smaller and more rounded; sixth segment

almost entirely black above, seventh black. Ovipositor black, rather slender and about equal in length to abdominal segments five, six and seven combined.

Type Specimen: Male from Phantom Lake, Fort Davis Quadrangle, Davis Mountains, Texas; F. M. Gaige, collector; Museum of Zoology, University of Michigan. Several other specimens of both sexes from the same locality are in the collection. A male from Costula, Texas, collected by the late F. C. Pratt and belonging to U. S. National Museum is referable to this species.

Remarks: Specimens of *Erax* easily become discolored and greasy, and are therefore sometimes hard to place with descriptions, especially when these are based on color. The color of this species is taken from good specimens, which appear somewhat different from others that are discolored, but there will be no trouble in locating the male of *Erax armatus* by the peculiar structure of the hind tibia. There are three species of *Erax* known from North America with modified hind tibiæ; in *Erax tagax* and *Erax sagar* the modifications are at the distal thirds of their respective hind tibiæ, while in *Erax armatus* the modification is of different appearance and near the middle. This character is not present in any case in any of the females of the various species.

Erax interruptus Macquart.—Numerous specimens of this very common southern species are included in the collection. The male has the hypopygium, from side view, plainly divided at the apex by a deep incision, furnishing a definite character for identification.

Mallophora faultrix Osten Sacken.—More than a dozen specimens of both sexes. The species is quite bee-like in appearance on account of its furry body. I have taken this

insect in Arizona and know it to be an active robber fly which catches a variety of insects for food. It has a wide distribution in arid regions.

Mallophora guildiana Williston.—This is a much smaller species than the preceding, but has similar habits. It flies from one perch to another when disturbed, and catches many small insects. The yellowish gray color is more or less protective on the sandy areas where it is usually found.

Promachus magnus Bellardi.—The genus *Promachus* contains several species of large active flies which are often abundant and are known to have an influence in materially reducing the numbers of insects upon which they prey. Their large size makes it possible for them to dispose of most other insects, and on account of their abundance much food is required. In my treatment of *Promachus* in a former paper, I had to omit the present species because material was not available. In this collection there are more than twenty fine specimens of both sexes, and from this material the following short description is formulated. Bellardi had only the female, so the male is here described for the first time.

Male.—Length 27-35 millimeters. General color dark; mystax and beard white; antennæ and proboscis black; palpi with black bristly hairs; all bristles of the whole body black; legs very dark reddish; thorax of the same color with narrow gray stripes dorsally; wings reddish hyaline, slightly darker at the apex; abdomen black above with gray posterior borders to the segments. There is no great marking in the first posterior cell as in *Promachus vertebratus*, but the darker area at the apex of the wing crosses this cell. The male and female are easily associated; the former has the genitalia densely silvery pilose above. The most apparent variation in the

specimens studied is a noticeable difference in the width of the wings. This is not a sexual characteristic, for it is shared by both males and females.

Promachus gigantulus Hine.—This is one of the largest American species of its family. Specimens at hand range from 35 to 47 millimeters in total length. Judging from the size, it must be an important predaceous enemy of other insects in regions where it abounds. The type was collected at El Paso, Texas.

Asilus gracilis Wiedemann.—This species is distinguished from all other described species of *Asilus* in this country by the long antennal bristle, which is fully twice as long as the third antennal segment. It is a pale slender species, well adapted to hiding on the gray sand.

Asilus leucopogon Williston.—The species is a common one on sand in arid regions, and is difficult to capture because of its protective coloration. It resembles the preceding species, but the antennal bristle is much shorter and the genitalia are very different.

