

## THREE NEW SPECIES OF ZAPRIOTHRICA WHEELER (DIPTERA, DROSOPHILIDAE)

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**ABSTRACT.**The genus *Zapriothrica* includes some poorly known flies which live in the flowers of *Datura* in Central and South America. In addition to the type species, *dispar* Schiner, from Colombia, Ecuador and Venezuela, the following three new species are described: *hirta* (Ecuador), *sternalis* (Ecuador), and *nudiseta* (Mexico). Possible natural hybridization between *hirta* and *sternalis* is discussed.

The genus *Zapriothrica* Wheeler (1956) was established for the little-known species *Sigaloessa dispar* Schiner. The original specimens, in the Naturhistorischen Museum in Vienna, were from Venezuela; since the earlier report on those specimens (Wheeler 1956) University of Texas collectors have found *dispar* abundant and widespread in certain mountain areas of South America, and two additional species have been found. Through the kindness of Dr. J. N. Belkin of the University of California at Los Angeles I have also had an opportunity to study a series from Jalisco, Mexico. These specimens represent a third undescribed species and extend the known range of the genus into the mountains of central Mexico.

The various species of *Zapriothrica* have all been taken from flowers, usually the large arboreal species of *Datura* whose flowers range from eight to ten inches in length. They also seem to prefer the cooler climate of higher elevations; our collections have been made at 5,000 to 10,000 feet.

The generic characters enumerated earlier (Wheeler 1956) may now be amplified and modified somewhat. There are no true anterior dorsocentral bristles though there may be some enlarged bristles just anterior to the usual posterior pair. The notopleura bear a variable number of bristle-like hairs in addition to the usual pair of large bristles; the only other genus in the family known to possess notopleural hairs is another flower-inhabiting genus of Mexico and South America, *Laccodrosophila*, which is probably related to *Zapriothrica*. All the species but one have a short plumose arista; the new species from Mexico has the branches reduced to an extreme degree, so that the arista appears bare except under very high magnification. There are always two sternopleural bristles, an anterior and a posterior one,

placed rather far apart but at about the same level from the meso-sternopleural suture. The body color, especially of pleura and abdomen, tends to be variable, and the males are often paler than the females.

Some paratypes and non-type specimens of each new species are being placed in the U. S. National Museum, Washington, D.C.; all other types are in the *Drosophila* Type and Reference Collection of the University of Texas.

#### KEY TO THE SPECIES OF ZAPRIOTHRICA

1. Arista bare, short, and black; mesonotum shining black, but with thick whitish pubescence over notopleura which continues back over wing base, forming a transverse pollinose area behind posterior dorsocentrals; face narrow, the antennal foveae nearly confluent, the interfoveal ridge low; vibrissae cruciate; Mexico ..... *nudiseta*, n. sp.  
 Arista short plumose; mesonotum subshining, uniformly overlaid with thin pollinosity; face broader and with a moderate to strong interfoveal ridge; vibrissae not cruciate.....2
2. Disc of scutellum with 4-6 short black bristles, irregularly disposed but usually including a cruciate pair at apex; wing blade often darkened; Ecuador..... *hirta*, n. sp.  
 Disc of scutellum usually bare; wings hyaline, at most darkened just below apex of 1st vein.....3
3. Prosternum with numerous hairs and bristles; pleura black in both sexes; posterior sternopleural bristle strong; head mostly black; Ecuador ..... *sternalis*, n. sp.  
 Prosternum pubescent but not hairy; color of pleura variable, often more or less tan; both sternopleurals weak; 3rd antennal joint paler below, face mostly tan, cheeks tan becoming darker behind; Venezuela, Colombia, Ecuador..... *dispar* (Schiner)

#### ZAPRIOTHRICA DISPAR (Schiner)

*Sigaloessa dispar* Schiner 1868. Reise der oesterreichischen Fregatte Novara. Zool. Theil, Diptera, p. 237.

*Zapriothrica dispar*, Wheeler 1956. Proc. Ent. Soc. Wash. 58:114.

We have observed this species in tremendous numbers in *Datura* flowers in Colombia; on a plant with perhaps twenty open flowers we have estimated as many as 1,000 individuals per flower. We have not been successful in raising the species in the laboratory.

In addition to the original record from Venezuela, we can report collections as follows:

*Colombia*: Medellín (30 kilo. N.W.), 8,000 ft., Nov., Dec., 1955 (W. B. Heed); Bogotá, 8,700 ft., Nov., 1955 (W. B. Heed); Campano, near Santa Marta, Sierra Nevada Mts., 5,000 ft., Aug., 1956 (W. B. Heed, H. L. Carson, M. Wasserman, H. Hoenigsberg); Popayan, 5,800 ft., March 1958 (M. R. Wheeler).

*Ecuador*: Chiriboga, 6,000 ft., March 1958 (M. R. Wheeler).

ZAPRIOTHRICA HIRTA, n. sp.

Similar to *dispar* but differing as shown in the key. Front broader than in *dispar*; 2nd antennal joint tan, 3rd dark; face dirty tan, the foveae moderately deep; cheeks rather narrow; palpi yellow and more bristly than in *dispar*, the major bristle subapical in position. Pleura all dark (♂, ♀); sternopleurals about as weak as in *dispar*; prosternum bare; legs all yellow, including coxae. Halteres yellow, the stalk only slightly darker. Scutellum more rounded apically, not truncate, and with the apical bristles closer than in *dispar*; scutellar disc with some short, black bristles, usually 4–6 in number but variable in number and in position. Wings often lightly infumated but clear-winged individuals occur (possibly an age difference); indices about as in *dispar*. Male abdomen mostly yellowish tan, the basal tergites with a varying degree of brown; female abdomen more extensively brown but pale apically. Female body length about 4.0 mm., wing about 4.0 mm.

Distribution. *Ecuador*: San Juan, 10,500 ft., and Mochachi, 7,000 ft., March 1958 (M. R. Wheeler). Holotype ♂, allotype, and paratypes from San Juan.

ZAPRIOTHRICA STERNALIS, n. sp.

The more important differences from *dispar* are given in the key. Head mostly black, the 2nd antennal joint only a little paler; palpi yellow, as bristly as in *hirta* and with the major bristle subapical in position. Foveae deep but the interfoveal ridge less pronounced than in *dispar* or *hirta*. Cheeks slightly wider than in *hirta*, dark. Pleura black in both sexes; sternopleural hairs stronger and more numerous than in *dispar* or *hirta*, with the posterior bristle large and well-developed. Prosternum brown, lightly pollinose, and with thick hairs and bristles. Legs yellow, the apical tarsal joints darker. Stalk of haltere browned, the knob whitish and large. Scutellum rounded apically, the disc usually bare (see remarks below). Wings hyaline, the indices not significantly different from *hirta*. Abdominal color and body size as in *hirta*.

Distribution. *Ecuador*: San Juan, 10,500 ft., and Mochachi, 7,000 ft.,

March 1958 (M. R. Wheeler). Holotype, allotype and paratypes from Mochachi.

ZAPRIOTHRICA NUDISETA, n. sp.

Generally similar to *dispar* but differing in many respects. Front noticeably longer than wide; antennae all yellow, contrasting with the black front; arista short, appearing bare, but with high magnification a few microscopic stubs of branches are visible. Face pale, narrow, the foveae nearly confluent, the interfoveal ridge weak; cheeks mostly pale, rather narrow; vibrissae cruciate over lower face; palpi yellow, the major bristle subapical in position. Legs wholly pale; stalk of haltere pale; prosternum bare; pleura mostly shiny, wholly tan in males, mostly darker brown in females on meso-, ptero-, and sternopleura but with a paler area from below humerus to base of fore coxa. Disc of mesonotum polished black but with thick whitish pubescence over notopleura that is continued anteriorly along edge of mesonotum and between humerus and coxal base; a similar pubescence above wing base and on a transverse area on mesonotum behind dorsocentral bristles. Scutellum thinly pubescent, rounded at apex, the disc bare. Sternopleurals about as weak as in *dispar*, but bristles of fore femora weaker than in that species. Female abdomen shiny black above, paler along sides; the elongate ovipositor sheath (longer than in the other species) blackened, the ovipositor tan with black teeth. Male abdomen mostly tannish, variably darkened dorsally on basal segments. Wings hyaline or with a slight brownish cast, the venation as in the other species.

Distribution. *Mexico*: Nev. Colima, Jalisco (Coll. 1234), contributed by Dr. J. N. Belkin, date and collector unknown. Holotype male, allotype and a series of paratypes from the above locality.

#### REMARKS ON SOME POSSIBLE NATURAL HYBRIDS

At Mochachi and San Juan, Ecuador, both *sternalis* and *hirta* were taken from the same *Datura* plants, and there is some evidence that they may be hybridizing at both localities. I have stated earlier that *hirta* possesses from four to six extra hairlike bristles on the disc of the scutellum while *sternalis* has the disc bare. However, in the preserved sample from San Juan (191 *hirta*, 201 *sternalis*) 16 individuals (11 ♀, 5 ♂) were found possessing one or two discal hairs but which were otherwise typical *sternalis*. In the Mochachi sample (10 *hirta*, 102 *sternalis*) two *sternalis* females were found with discal hairs. Although the samples are too small to warrant any general conclusions, it is tempting to speculate that the aberrant individuals may have resulted

from backcrosses from previous hybridization. The species of *Datura* involved, although not yet positively identified, is probably a Peruvian species which is now being raised in Ecuadorian frontyards for its beauty. A species of Peruvian *Zapriothrica* might also have been transported to Ecuador where it is now competing with, and possibly hybridizing with, a local species.

The variation in number and position of the discal bristles of *hirta* is also unusual, and can be interpreted as a manifestation of an unstable genotype resulting in variation of expression of a "species trait." Possibly this trait is affected by several genes and is sufficiently recent in its origin in the species that complete homozygosity in the population has not yet been attained. An alternative hypothesis is that an originally stable genotype of *hirta* has been disrupted due to an influx of genes from *sternalis* as a result of hybridization. It is not possible, on the basis of the data, to choose between these alternatives, but further studies of the populations involved, and of populations elsewhere in South America, could probably provide the necessary information.

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In March, 1958, Prof. Th. Dobzhansky and I were most fortunate in meeting Eng. José Donoso of the Department of Entomology of the Universidad Central, Quito, Ecuador, who arranged collecting trips for us to two of the most interesting areas in Ecuador: the Estacion Experimental de Cotopaxi (FAO), at about 11,755 feet elevation on Mt. Cotopaxi, and to Santo Domingo de los Colorados. A number of new species of Diptera were secured on these trips, including the species of *Zapriothrica* from Mochachi and San Juan, described above. Our association with Eng. Donoso was both pleasant and profitable, and it is a pleasure to acknowledge his most generous help.

#### LITERATURE CITED

- WHEELER, M. R. 1956. *Zapriothrica*, a new genus based upon *Sigaloessa dispar* Schiner, 1868. Proc. Ent. Soc. Wash. 58 (2): 113-115.