

## Research Notes



**New record of *Drosophila nebulosa* Sturtevant, 1916 (Diptera, Drosophilidae) in western Argentina extends its southern distribution.**

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*D. nebulosa* Sturtevant is a member of the *willistoni* species group of the subgenus *Sophophora*. It is rather common in tropical and partly subtropical America (Pavan, 1946), preferring open vegetal formations (Val *et al.*, 1981; Martins, 1987) and xeric environments (Da Cunha *et al.*, 1953), displacing *D. willistoni* as the dominant species at the dry savanna regions (Dobzhansky, 1962).

*D. nebulosa* was previously reported occurring from the southern United States (Texas and Florida; Patterson and Wagner, 1943) into the Caribbean, and throughout South America to the La Plata river area; as far south as Buenos Aires (34° 36' 14" S, 58° 22' 54" W) and Montevideo (34° 54' 21" S, 56° 11' 29" W) in the east (Da Cunha *et al.*, 1953; Valente *et al.*, 1996) and the Tucumán province (26° 49' 50" S, 65° 12' 13" W) in the west (Da Cunha *et al.*, 1953) (Figure 1). However, information regarding the actual geographic range and ecological conditions where this species occurs is scarce and frequently anecdotal.

In the present work we are reporting for the first time the presence of *D. nebulosa* in San Juan province enlarging in a south-western direction its Andean distributional range. Our sampling site, San Agustín del Valle Fértil (30° 38' 1" S, 67° 27' 59" W) is located at 250 km north-east of the capital city of the province, San Juan. This zone belongs to the Phytogeographic Province known as Monte (Cabrera, 1971) with a vegetation typical of a shrub steppe adapted to warm and arid weather, with periodic droughts of 6 to 9 months a year and mean annual precipitation of 200-250 mm (Mirrè, 1976). The vegetation is of a xeric environment, with scarce arboreal vegetation, mainly represented by "algarrobos" (genus *Prosopis*), and cacti of *Echinopsis* (cardon) and *Opuntia* (prickly pear) genera.

We used a mix of commercial yeast and mashed banana as bait. The baits were located in plastic buckets in shadowed areas beneath trees and bushes in rocky sloped terrain and near a creek bank. Flies were collected by net sweeping around the buckets. Alongside *D. nebulosa*, we captured other drosophilids such as the cactophilic *D. buzzatii* and *D. koepferae*, the widespread *D. simulans*, and also other dipterans such as Neriid flies.

*D. nebulosa* was identified following Markow and O'Grady (2006). Briefly, along with its sibling *D. fumipennis* Duda, *D. nebulosa* presents a conspicuous trait: it is the only species of the *willistoni* group that presents wings with infuscations that give them the typical dark coloration (Figure 2). However, *D. nebulosa* presents a broader carina and differs from *D. fumipennis* in the relative length of the cephalic setae (Markow and O'Grady, 2006).

The isofemale lines founded from the collected females inseminated in the wild are kept in the stocks of the Laboratory of Evolution at the Buenos Aires University in a rearing medium based on cornmeal and commercial yeast.

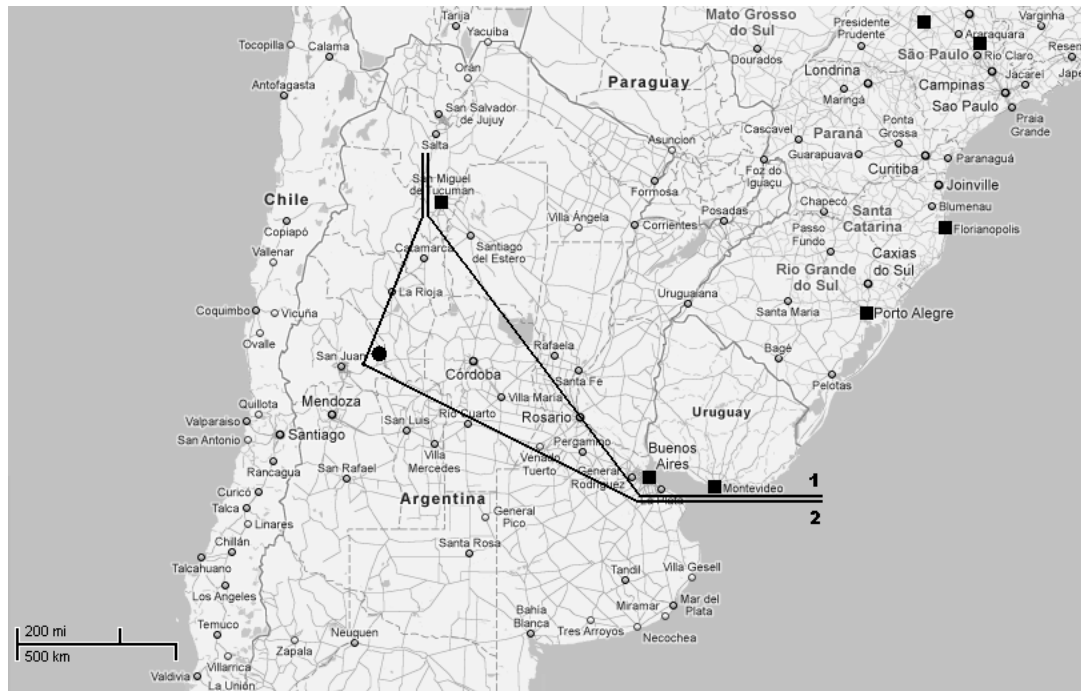


Figure 1. Geographic range of *Drosophila nebulosa* in southern South America. Squares represent localities reported elsewhere (see references). The circle points the location of this new record. Previous (1) and actualized (2) putative southern distributional limits are also shown.

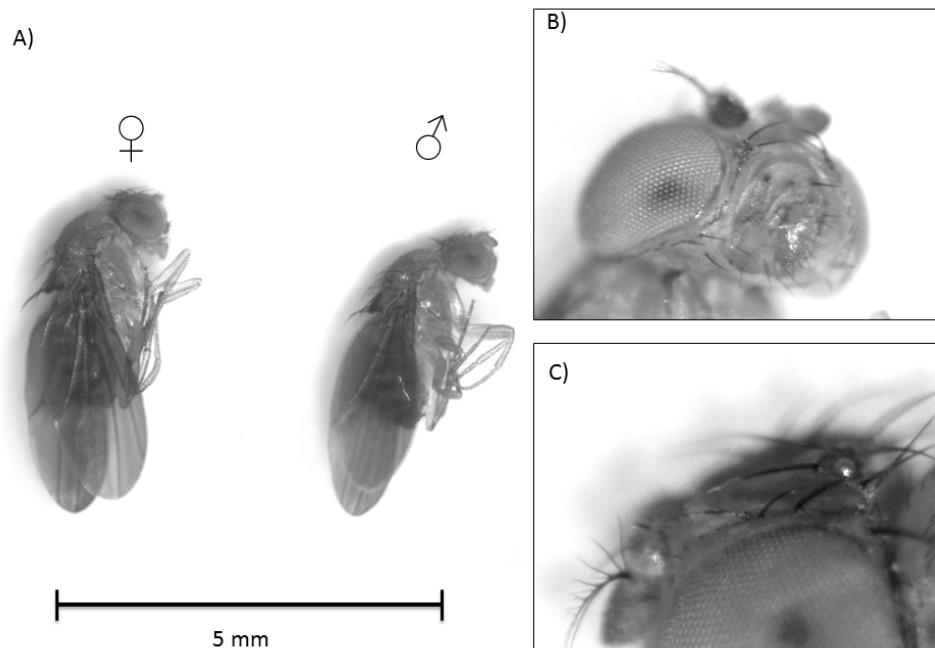


Figure 2. Lateral view of collected specimens of *D. nebulosa* (A) with a more detailed latero-frontal view of the head, showing the distinctive relative lengths of the oral (B) and orbital setae (C) (for further detail, see Markow and O'Grady, 2006).

This finding confirms previous observations that *D. nebulosa* is at its best in the savanna environments where dry seasons alternate with rainy ones (Dobzhansky, 1950), and that it occurs in dry habitats where no sibling species is found (Ayala *et al.*, 1974). The finding here reported extends the putative region of occurrence for this species in about 230,000 square kilometers and into the semi-arid regions of the Andean mountain range.

Finally, we would like to encourage further attempts to summarize and compile the distributional data of other Neotropical species of *Drosophila*, a task dearly needed for the better assessment of the biodiversity and too infrequently performed.

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### **Behavioral characterization of P-element insertion lines of *Drosophila melanogaster*.**

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### **Abstract**

As continuation of our previously published results (Ahsan *et al.*, 2008) we further characterized the *Drosophila* P-element insertion lines behaviorally in our standardized adult and larval olfactory behavioral paradigms for their olfactory response phenotype. We tested these lines with three chemicals - Ethyl acetate, Isoamyl acetate, and 1-Hexanol at concentrations varying from  $10^{-1}$  to  $10^{-9}$ . We also compared the conditioned and unconditioned olfactory responses. We found insertion lines with varying degree of olfactory responses to the tested chemicals.