Three new records of drosophilids for the Brazilian Savanna.

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The Brazilian Savanna, locally known as Cerrado, covers most of the interior of Brazil and includes a few small contiguous areas in Bolivia and Paraguay (Oliveira and Marquis, 2002). This extremely biodiverse savanna is the second largest South American biome and one of 34 biodiversity hotspots around the world, due to its high endemism and the extreme threats that it faces (Mittermeier *et al*., 2005). Thus, documenting biodiversity in this area is a significant step toward obtaining critical subsidies for its preservation and conservation.

Taxonomic inventories of drosophilids in the Brazilian savanna have revealed 129 species representatives of the genera *Amiota*, *Drosophila* (the richest genus, with 90 species), *Diathoneura*, *Hirtodrosophila*, *Leucophenga*, *Mycodrosophila*, *Neotanygastrella*, *Rhinoleucophenga*, *Scaptomyza*, and *Zygothrica* (Roque *et al*., 2015). Most species are endemic to the Neotropical Region and are distributed unevenly in this biome probably because of its temporal and spatial heterogeneity. The data produced by these inventories also suggest that biodiversity of drosophilids of the Brazilian Savanna is poorly explored, because of the high number of morphotypes and new records continuously registered for this biome. In this paper, we document the first record of three drosophilid species in the Brazilian Savanna and update the total number of drosophilids known for this biome. From October 2013 to April 2016, we monitored drosophilid assemblages in the IBGE Ecological Reserve (15º56' S; 47º53' W), using retention traps (Roque *et al*., 2011) with fermented banana as bait. Twelve specimens of *Drosophila piratininga* Ratcov and Vilela were collected in gallery forests (several collections), and one male of *D. aldrichi* Patterson and Crow was recorded in *cerrado sensu stricto* (February 2014). In the *Campus Planaltina* of the *Instituto Federal de Brasília* (15°38' S, 47°41' W), distant about 60 km from IBGE, we captured two specimens of *Scaptomyza vittata* Coquillet in February 2016 from bean plants, using drop cloths. All drosophilids were maintained in ethanol 70% and identified using taxonomic keys and descriptions (Brncic, 1955; Hackman, 1959; Wheeler and Takada, 1966; Vilela, 1983; Vilela and Ratcov, 2007). Voucher specimens were deposited in the Collection of the *Laboratório de Biologia Evolutiva* of the *Universidade de Brasília* and *Laboratório de Biologia Animal* of the *Instituto Federal de Brasília* (*Campus Planaltina*).

Drosophila (Drosophila) piratininga belongs to the *canalinea* group, which includes cryptic neotropical species easily recognized by being mainly dark brown flies with two brown rings on each yellowish tibia and a mesonotum exhibiting an intricate pattern of diffuse longitudinal stripes (Ratcov and Vilela, 2007). *D. piratininga* was previously registered in Southern and South-eastern Brazil, in the Pampas (RS) and Atlantic Forest (RS, SC and SP) biomes (Ratcov and Vilela, 2007; Döge *et al*., 2008; García *et al*., 2012; Valer *et al*., 2013; Poppe *et al*., 2014). Consequently, this is the northernmost record for *D. piratininga.*

Drosophila (*Drosophila*) *aldrichi* is a cryptic species of the *mulleri* subgroup of the *repleta* group. It was recorded in USA (TX), from Mexico to Brazil, and in Australia (Brake and Bächli, 2008). In Brazil, this species has been previously registered in the Amazon Forest (AM), Pantanal (MS), and Atlantic Forest (PR) (Vilela, 1983).

Scaptomyza (*Mesoscaptomyza*) *vittata* is a yellowish species characterized by two acrostical rows between three pairs of dorsocentral bristles, and it is probably a leaf miner in its larval stages. This fly is a neartic-neotropical widely distributed species (Brncic, 1955; Hackman, 1959; Wheeler and Takada, 1966), previously recorded in North and Central America, Colombia, Ecuador, Peru, and Bolivia. This is the first record of *S. vittata* in Brazil, extending its easternmost distribution in the Neotropical Region.

In sum, considering the absence of *Drosophila saltans* (a species recorded in Roque and Tidon, 2013) in the list published by Roque *et al*. (2015) and the three new records of drosophilids reported here, we extend the total number of drosophilid recognized for the Brazilian Savanna to 133 species (117 Drosophilinae and 16

Steganinae).

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References: Brake, I., and G. Bächli 2008, *World Catalogue of Insects 9: Drosophilidae (Diptera)*. Appolo Books, Stenstrup; Brncic, D., 1955, Rev. Chil. Entomol. 4: 237-250; Doge, J.S., V.L.S. Valente, and P.R.P. Hofmann 2008, Rev. Bras. Entomol. 52: 615-624; Garcia, C.F., C.J.C. Hochmuller, V.L.S. Valente, and H.J. Schmitz 2012, Neotropical Ent. 41: 32-41; Hackman, W., 1959, Acta Zool. Fenn. 97: 1-73; Mittermeier, R.A., P.R. Gil, M. Hoffman, J. Pilgrim, T. Brooks, C.G. Mittermeier, J. Lamoreux, and G.A.B. da Fonseca 2005, *Hotspots Revisited: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions*. Cemex, WA; Oliveira-Filho, A.T., and R.J. Marquis 2002, *The Cerrados of Brazil. Ecology and Natural History of a Neotropical Savanna*. Columbia University Press, New York; Poppe, J.L., H.J. Schmitz, D. Grimaldi, and V.L.S. Valente 2014, Zootaxa 3779: 215-245; Ratcov, V., and C.R. Vilela 2007, Iheringia, Ser. Zool. 97: 336-342; Roque, F., L. Mencarini, and R. Tidon 2015, Dros. Inf. Serv. 98: 70-74; Roque, F., and R. Tidon 2013, Ann. Ent. Soc. Am. 106: 117-121; Roque, F., S.C.F. Oliveira, and R. Tidon 2011, Dros. Inf. Serv. 94: 140-141; Valer, F.P., A.S. Neutzing, F.R.M. Garcia, M.S. Gottschalk, and M.L. Blauth 2013, Dros. Inf. Serv. 96: 120-123; Vilela, C.R., 1983, Rev. Bras. Entomol. 27: 1-114; Wheeler, M.R., and H. Takada 1966, Univ. Texas Publ. 6615: 37-78.

Chromosomal polymorphisms in natural populations of *Drosophila malerkotliana.*

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Structural aberrations in the chromosomes of *Drosophila* can be distinctly observed due to presence of polytene chromosomes. Inversions, particularly paracentric inversions, are very common in *Drosophila* (Dobzhansky,1950; da Cunha, 1960; Sperlich and Pfriem, 1986). Presently, we are studying genetic polymorphisms at all the three levels, *i.e.*, chromosomal, protein, and nucleotide, in different natural populations of *bipectinata* species complex. *Drosophila bipectinata* species complex is a group of four closely related species that includes *D. bipectinata, D. parabipectinata, D. malerkotliana*, and *D. pseudoananassae*. Phylogenetic relationships among these four species have been documented by earlier researchers (Bock, 1971; Singh and Banerjee, 2012; Singh and Banerjee, 2016; Tomimura, 2005). Chromosomal polymorphisms in *D. malerkotliana* has been reported by some of the population geneticists, and their study has revealed that this species is chromosomally polymorphic (Jha and Rahman, 1972; Naserulla and Hegde,1993; Singh and Singh, 2015). In this report we are describing about four new paracentric inversions, which have been observed in two distantly located natural populations of *D. malerkotliana*.

Isofemale lines established from two natural populations of *D. malerkotliana* collected from Varanasi (Uttar Pradesh) and Bilaspur (Chhattisgarh) were analyzed for chromosomal polymorphisms. These two places are separated from each other by a distance of about 530 km. Third instar larvae randomly selected from isofemale lines were dissected in insect saline to isolate salivary glands, and the glands were then transferred onto cleaned glass slides. The glands were stained in lacto-aceto-orcein and squashed in mountant (60 percent acetic acid + lactic acid in 1:1 ratio) for polytene chromosomes preparation. Hundreds of larvae subjected to this study from the two natural populations enabled us to identify eleven different types of paracentric inversions. Out of these, four new inversions were observed for the first time in this species. Among the four new inversions, three were located on autosomal chromosomes and one in the X-chromosome. Two inversions, *i.e.*, median and basal, were found to be present in 3L and a single basal inversion was present in 2R. A single X chromosome inversion was median in position in the left arm of X chromosome. Figure 1a-d depicts the microphotographs of these inversions in different chromosome arms of