

Fauna of Simuliidae (Diptera) from the state of Espírito Santo, Brazil: Distribution, new records and list of species

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ABSTRACT. Fauna of Simuliidae (Diptera) from the state of Espírito Santo, Brazil: Distribution, new records and list of species. The fauna of Simuliidae in Brazil is composed of 87 species, 17 of which are recorded from the state of Espírito Santo. Entomological collections were carried out in 2010–2011 with the objective of increasing the knowledge of the species richness of this family in the state. Ninety three rivers and streams were sampled, each collection being carried out in a 50m transect. During the study period 30 species were collected, 13 of which represent new records for the state, 12 of the genus *Simulium* and one of the genus *Lutzsimulium*. Among these new state records one, *Simulium lobato*, also represents a new record from southeastern Brazil. The other newly recorded species are: *Lutzsimulium hirticosta*, *Simulium distinctum*, *Simulium exiguum*, *Simulium oyapockense*, *Simulium botulibranchium*, *Simulium petropoliense*, *Simulium clavibranchium*, *Simulium rappae*, *Simulium minusculum*, *Simulium dinellii*, *Simulium ochraceum* and *Simulium scutistriatum*.

KEYWORDS. Aquatic insects; Atlantic forest; black flies; distribution; Insecta.

According to Adler & Crosskey (2012), 2,120 species of black flies have been described worldwide, of which 87 occur in Brazil. In this global inventory of simuliids, the southeastern, southern and northern regions of Brazil are those with the greatest number of recorded species, while the northeastern region has the fewest, with one state even lacking any records for this family.

With respect to the other states in southeastern Brazil, the numbers of simuliid species recorded from São Paulo, Rio de Janeiro and Minas Gerais are 50, 38 and 34, respectively (Adler & Crosskey 2012). Number of black fly species records in the state of Espírito Santo, historically little studied in relation to aquatic insects (Salles *et al.* 2010), increased from eight to 17 in 2010 (Bertazo *et al.* 2010). Despite this increase, it became clear that this value is still underestimated in comparison with other states from southeastern Brazil.

The objective of the present study is to increase the knowledge of simuliids in Espírito Santo by presenting new records and integrating these data into the literature through elaboration of an updated list of species.

MATERIAL AND METHODS

Study Area. The state of Espírito Santo (Fig. 1) is located in SE Brazil, bounded by the states of Bahia, Minas Gerais and Rio de Janeiro in the north, west and south, respectively, and by the Atlantic Ocean in the east. It occupies an area of just over 46,000 km² and is constituted by 78 municipalities and 12 hydrographic basins. Despite being one of the smallest Brazilian states, the ter-

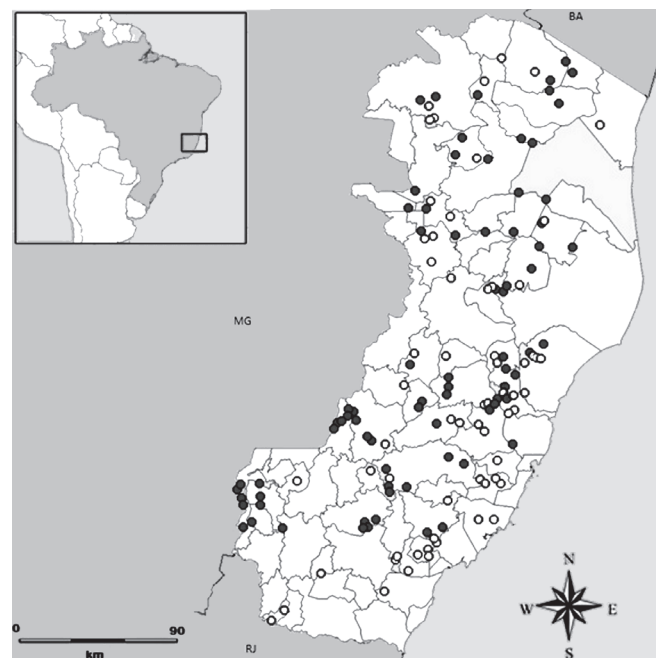


Fig. 1. Map of the Brazilian state of Espírito Santo with localities where Simuliidae (Diptera) were recorded. Black circles: points sampled during the present study (detailed information in Table I), white circles: localities sampled in previous studies.

ritory includes two totally distinct subregions: uplands with elevations of up to 2,890 m (*Pico da Bandeira*) and low-lying areas which represent 40% of the total area of the State (Feitoza 2001).

Collections. A total of 93 field sites were visited in several excursions carried out during 2010 and 2011 (Fig. 1). Collections were performed using two methods: D-shaped net with apertures of approximately 0.5 mm and by the method of manual capture. The first consisted of sweeping a shaded area in eight types of meso-habitats found within a 50m stretch of the river. These included gravel (2.00 mm–2.00 cm), larger but moveable stones (2.00–20.00 cm), boulder (>20 cm), slabs, riffle litter (leaves and branches trapped on the surface of the water, generally in areas of moderate to strong current), roots, trunks, marginal vegetation (terrestrial vegetation present on the margins of bodies of water, with some of their structures submerged in water) and macrophytes. The second method consisted of direct collection from all available substrates, removing them from the water to collect larvae and pupae using forceps. All the samples collected were fixed in 92.6% ethanol in the field and subsequently transferred to 80% ethanol in the laboratory. Pupae containing pharate adults were maintained live in plastic vials containing humid filter paper until the adults emerged; these were subsequently stored in vials containing 80% alcohol together with their respective exuviae. Additionally, adult females were captured biting human beings during fieldwork with the aid of a Castro suction trap and preserved in 80% ethanol. Species identification was carried out using specialized bibliography and published species descriptions (*e.g.* Coscarón & Wygodzinsky 1984; Coscarón 1987, 1991; Shelley *et al.* 1997, 2004). The specimens are deposited in the *Coleção Zoológica Norte Capixaba* of the Federal University of Espírito Santo (UFES), São Mateus. The map was prepared using the Diva-Gis 7.5 software.

Examined material and geographical distribution. The geographical distribution of the species listed was compiled from Adler & Crosskey (2012) and Bertazo *et al.* (2010). A new record in Espírito Santo and/or in its municipality is marked with an asterisk (*). The collection sites are referred as PT and detailed information on them can be found in Table I. The number of individuals and life cycle stage examined are shown in brackets (L for larvae, P for pupae and A for adults); collection date is also given.

RESULTS AND DISCUSSION

Lutzsimulium hirticosta Lutz, 1909

Geographical distribution: Argentina and Brazil: PR, SC, RS, SP, MG, RJ, BA and ES* (Domingos Martins*).

Comments: First record from Espírito Santo. This species lives in leaf clinging vegetation in rivers of small volume and crystal clear water.

Material examined: PT 42, (13L, 01P), 27.iii.2011

Simulium (Chirostilbia)

S. (C.) distinctum Lutz, 1910

Geographical distribution: Brazil: PR, SC, RS, SP, MG, RJ and ES* (Ibitirama*).

Comments: First record from Espírito Santo. Found in small streams, with little volume and moderate current.

Material examined: PT 23, (2P), 29.v.2011; PT 24, (2L, 2P), 30.v.2011; PT 26, (7L, 3P), 02.vi.2011; PT28, (4L, 1P), 03.vi.2011; PT 29, (8P), 03.vi.2011 and PT 52, (1P), 01.vi.2011.

S. (C.) pertinax Kollar, 1832

Geographical distribution: Argentina, Bolívia, Paraguay and Brazil: PR, SC, RS, GO, MT, MS, DF, AM, RO, RR, TO, BA, PB, SP, MG, RJ and ES (Afonso Cláudio, Águia Branca*, Alegre*, Alfredo Chaves, Brejetuba*, Castelo*, Domingos Martins, Dores do Rio Preto*, Fundação*, Ibitirama*, Itaguaçu*, Itarana*, Santa Leopoldina, Santa Maria de Jetibá, Santa Teresa, São Gabriel da Palha* and Serra*).

Comments: Distribution increased in the state. Live in rivers with strong current and clear water in submerged plants and in riffle litter.

Material examined: PT 01, (1L, 5P), 15.ii.2011; PT 02, (2L), 15.ii.2011; PT 03, (8L, 19P), 16.ii.2011; PT 04, (6L, 1P), 16.ii.2011; PT 05, (2L), 16.ii.2011; PT 07, (13P), 28.iii.2011; PT 08, (5L, 2P), 27.v.2011; PT 09, (774L, 107P), 28.v.2011; PT 10, (199L, 102P), 27.x.2010; PT 12, (111L, 2P), 29.x.2010; PT 20, (5L, 2P), 17.ii.2011; PT 21, (10L, 4P), 17.ii.2011; PT 22, (4L, 9P), 17.ii.2011; PT 29, (132L, 26P), 03.vi.2011; PT 30, (157L, 2P), 08.vi.2011; PT 31, (2L, 1P); PT 32, (3L, 8P), 09.vi.2011; PT 34, (9P), 27.viii.2010; PT 35, (12P), 28.viii.2010; PT 36, (30L, 7P), 29.viii.2010; PT 37, (4P), 28.viii.2010; PT 38, (551L, 44P), 30.viii.2010; PT 39, (10L, 6P), 18.ii.2011; PT 40, (9L, 58P), 18.ii.2011; PT 41, (7L, 2P), 25.iii.2011; PT 42, (9L, 19P), 27.iii.2011; PT 43, (20L, 37P), 25.iii.2011; PT 44, (2L, 13P), 25.iii.2011; PT 45, (28L, 1P), 25.iii.2011; PT 48, (22L, 1P), 02.xii.2010; PT 49, (1L), 14.iv.2011; PT 51, (946L, 82P), 31.v.2011; PT 52, (19L, 15P), 01.vi.2011; PT 54, (1045L, 30P), 01.vi.2011; PT 55, (14L, 10P), 07.ii.2011; PT 56, (331L, 11P), 10.ii.2011; PT 57, (646L, 74P), 10.ii.2011; PT 75, (5P), 12.x.2010; PT 76, (77L, 22P), 12.xi.2010; PT 77, (4L, 6P), 20.v.2011; PT 78, (713L, 153P), 09.ii.2011; PT 79, (5L, 17P), 09.ii.2011; PT 80, (9L), 14.xi.2010; PT 81, (6L), 08.ii.2011; PT 84, (2P), 11.vi.2011; PT 85, (1L), 14.i.2011 and PT 87, (1L), 05.xi.2011.

S. (C.) spinibranchium Lutz, 1910

Geographical distribution: Bolívia, Guyana, Venezuela and Brazil: PR, SC, RS, GO, MT, MS, DF, RR, TO, BA, PE, SP, MG, RJ and ES (Afonso Cláudio*, Águia Branca*, Aracruz, Barra de São Francisco*, Brejetuba*, Castelo*, Domingos Martins*, Dores do Rio Preto*, Ecoporanga*, Ibitirama*, Linhares*, Montanha* and Sooretama*).

Comments: Distribution increased in the state. Found in small shallow rivers with clear waters, attached to rocks.

Material examined: PT 01, (1P), 15.ii.2011; PT 05, (35L, 1P), 16.ii.2011; PT 06, (68L), 12.i.2011; PT 13, (866L, 69P), 14.x.2010; PT 16, (1P), 21.i.2011; PT 22, (3P), 17.ii.2011; PT 30, (38L), 08.vi.2011; PT 38, (5P), 30.viii.2010; PT 42, (2L), 27.iii.2011; PT 43, (6L, 49P), 25.iii.2011; PT 44, (6L, 37P), 25.iii.2011; PT 46, (6L), 19.i.2011; PT 49, (9L, 8P), 14.iv.2011; PT 62, (3432L, 29P), 28.i.2011; PT 65, (7L, 1P), 17.i.2011 and PT 90, (12L, 1P), 09.v.2011.

S. (C.) subpallidum Lutz, 1910

Geographical distribution: Argentina, Guyana, Paraguay, Uruguay, Venezuela and Brazil: PR, SC, RS, GO, MT, MS,

Table I. Number of collection points for Simuliidae (Diptera, Nematocera) in Espírito Santo as well as municipalities, localities, geographical coordinates and elevation.

Point	Municipalities	Locality	Coordinates	Elevation (M)
PT 01	Afonso Cláudio	Stª Luzia. Cachoeira Santa Luzia	20°09'19.9" S, 41°08'32.3" W	457
PT 02	Afonso Cláudio	Stª Luzia. Cachoeira do Funil	20°08'35.1" S, 41°09'02.0" W	446
PT 03	Afonso Cláudio	Ibicaba. Cachoeira Ibicaba	20°00'40.1" S, 41°14'37.7" W	523
PT 04	Afonso Cláudio	Ibicaba. Cachoeira Vista da Mata	19°59'49.7" S, 41°15'21.1" W	593
PT 05	Afonso Cláudio	Caminho pra Ibicaba. Córrego Pedra Limpa	20°03'19.2" S, 41°13'05.8" W	452
PT 06	Água Branca	Boa Vista. Cachoeira Luizana	18°55'36.2" S, 40°50'25.2" W	238
PT 07	Água Branca	Pedra Torta. Represa	19°04'33.6" S, 40°41'42.6" W	168
PT 08	Alegre	Parque Estadual Cachoeira da Fumaça. Cachoeira da Fumaça	20°37'52.2" S, 41°36'12.9" W	447
PT 09	Alegre	Parque Estadual Cachoeira da Fumaça. Córrego do Graminha	20°37'52.1" S, 41°36'18.8" W	455
PT 10	Alfredo Chaves	Nova Mantuá. Fazenda Nego Boldrini.	20°39'22.6" S, 40°50'12.9" W	371
PT 11	Alfredo Chaves	Junção rio Benevente	20°37'53.20" S, 40°45'43.98" W	20
PT 12	Alfredo Chaves	Nova Mantuá. Fazenda Nego Boldrini. Trecho Bambuzal	20°39'39.30" S, 40°50'17.93" W	429
PT 13	Aracruz	Gimuhuna. Fazenda do César	19°43'43.48" S, 40°14'55.16" W	44
PT 14	Aracruz	Assombro. Sítio Bica d'Água	19°39'03.0" S, 40°13'22.2" W	35
PT 15	Aracruz	Córrego D'Água. Rio da Vovozinha	19°42'26.3" S, 40°16'58.2" W	22
PT 16	Barra de São Francisco	Itauninha. Cachoeira de Itauninha	18°49'55.1" S, 40°54'39.9" W	207
PT 17	Boa Esperança	Rio Cotaxé	18°34'39.1" S, 40°16'58.0" W	8
PT 18	Boa Esperança	Biz. Rio São José	18°33'27.6" S, 40°20'06.4" W	27
PT 19	Brejetuba	São Jorge. Cachoeira Nilo Olimpio	20°02'00.5" S, 41°15'44.6" W	471
PT 20	Brejetuba	São Jorge. Cachoeira do Bernardes	20°04'17.9" S, 41°18'52.1" W	613
PT 21	Brejetuba	São Domingos Grande. Rio São Domingos	20°05'13.8" S, 41°19'54.1" W	656
PT 22	Brejetuba	São Domingos. Cachoeira São Domingos	20°03'52.1" S, 41°17'57.8" W	667
PT 23	Caparaó	Alto Caparó. Vale Verde	20°25'11.8" S, 41°50'42.4" W	1305
PT 24	Caparaó	Alto Caparó. Cachoeira Bonita	20°24'27.7" S, 41°50'24.1" W	1329
PT 25	Caparaó	Alto Caparó. Vale Encantado	20°24'38.3" S, 41°50'03.3" W	1986
PT 26	Caparaó	Cachoeira da Farofa. Rio São Domingos	20°28'18.2" S, 41°49'42.2" W	1927
PT 27	Caparaó	Casa Queimada. Nascente lado direito.	20°30'07.6" S, 41°49'10.4" W	2180
PT 28	Caparaó	Sede Parque Nacional do Caparaó. Rio frente ao alojamento	20°30'07.1" S, 41°49'10.4" W	1416
PT 29	Caparaó	Sede Parque. Rio São Domingos	20°30'10.1" S, 41°49'08.2" W	1412
PT 30	Castelo	Parque Estadual Mata das Flores. Cachoeira 1	20°36'42.7" S, 41°10'12.1" W	86
PT 31	Castelo	Parque Estadual Mata das Flores. Rio da Prata	20°37'09.3" S, 41°09'51.6" W	89
PT 32	Castelo	Parque Estadual Mata das Flores. Rio Brucutu	20°37'09.3" S, 41°10'34.5" W	94
PT 33	Castelo	Parque Estadual Mata das Flores. Rio da Prata, trecho ponte	20°35'26.4" S, 41°06'59.1" W	99
PT 34	Domingos Martins	Melgacinho. Cachoeira 1	20°14'48.3" S, 40°43'31.2" W	650
PT 35	Domingos Martins	Melgacinho. Rio Campinho	20°15'02.6" S, 40°43'27.4" W	622
PT 36	Domingos Martins	Melgacinho. Afluente Rio Campinho	20°15'02.6" S, 40°43'27.4" W	622
PT 37	Domingos Martins	Melgacinho. Rio próximo a casa	20°15'6.14" S, 40°43'27.00" W	616
PT 38	Domingos Martins	Cachoeira do Galo	20°17'21.02" S, 40°38'58.61" W	508
PT 39	Domingos Martins	Peçanha. Cachoeira da Peçanha	20°18'55.4" S, 41°03'20.1" W	673
PT 40	Domingos Martins	Florianópolis. Cachoeira São Florianópolis	20°24'41.5" S, 40°56'34.2" W	1044
PT 41	Domingos Martins	atrás pedra do lagarto	20°24'49.9" S, 41°02'23.3" W	872
PT 42	Domingos Martins	Cachoeira do Galo Bravo	20°25'49.6" S, 41°02'05.9" W	889
PT 43	Dores do Rio Preto	Pedra Menina. Rio	20°37'30.3" S, 41°49'27.1" W	884
PT 44	Dores do Rio Preto	Pedra Menina. Cachoeira 2	20°37'30.01" S, 41°48'55.92" W	898
PT 45	Dores do Rio Preto	Mundo Novo. Águas do Caparaó. Cachoeira	20°36'03.8" S, 41°46'37.4" W	894
PT 46	Ecoporanga	Balança. Cachoeira Bonita	18°19'42.3" S, 40°47'40.3" W	109
PT 47	Ecoporanga	Cachoeira 2 de setembro	18°20'55.9" S, 40°52'23.4" W	366
PT 48	Fundão	Timbuí. Rio Hotel Fazenda	19°56'02.00" S, 40°24'45.00" W	57
PT 49	Ibiraçu	Cascata Ibiraçu	19°49'01.55" S, 40°22'22.37" W	34
PT 50	Ibiraçu	Cachoeirão	19°53'23.4" S, 40°25'42.00" W	54
PT 51	Ibitirama	Rio Santa Marta	20°29'51.3" S, 41°43'45.9" W	935
PT 52	Ibitirama	Rio Pedra Roxa	20°23'49.0" S, 41°44'08.6" W	1050
PT 53	Ibitirama	Afluente do Rio Pedra Roxa	20°23'49.61" S, 41°44'08.79" W	1050

Continues

Table I. Continued.

Point	Municipalities	Locality	Coordinates	Elevation (M)
PT 54	Ibitirama	Tecnotruta. Rio Calçado	20°27'58.3" S, 41°43'49.0" W	1057
PT 55	Itaguaçu	Sobreiro. Cachoeira Christopher	19°45'21.8" S, 40°55'56.6" W	66
PT 56	Itarana	Barra jatibocas. Cachoeira da Ponte	19°57'50.8" S, 40°52'08.7" W	777
PT 57	Itarana	Barra jatibocas. Rio Jatibocas	19°58'44.4" S, 40°52'55.0" W	450
PT 58	Jaguaré	Santa Maria. Cachoeira do Bereco	18°53'04.46" S, 40°12'23.14" W	45
PT 59	João Neiva	Demétrio Ribeiro. Rio Pau Gigante	19°43'08.35" S, 40°26'37.40" W	175
PT 60	João Neiva	Mundo Novo. Cachoeira do Inferno	19°46'56.4" S, 40°25'09.9" W	71
PT 61	Linhares	São Vicente. Cachoeira De Angeli	19°20'59.1" S, 40°25'17.5" W	66
PT 62	Linhares	São Rafael. Cachoeira São Rafael	19°22'04" S, 40°26'48" W	138
PT 63	Linhares	Reserva da Vale	19°08'14.00" S, 40°03'54.39" W	38
PT 64	Montanha	Fazenda Esplanada. Cachoeira Goela da Onça	18°14'42.33" S, 40°10'43.83" W	72
PT 65	Montanha	Fazenda Esplanada. Cachoeira Rio do Sul	18°17'45.5" S, 40°11'31.2" W	88
PT 66	Nova Venécia	Pip-Nuk. Rio	18°39'51.42" S, 40°30'44.7" W	80
PT 67	Pancas	Vila Verde. Cachoeira do Giles	19°03'02.5" S, 40°52'27.9" W	95
PT 68	Pancas	Vila Verde. Cachoeira do Moraes	18°55'45.4" S, 40°56'31.6" W	255
PT 69	Pedro Canário	Assentamento Castro Alves. Cachoeira dos Pretos	18°08'49.9" S, 40°06'25.2" W	64
PT 70	Pedro Canário	Assentamento Castro Alves. Cachoeira da Mata	18°12'10.8" S, 40°04'37.9" W	35
PT 71	Pinheiros	Rerserva Córrego do Veado. Rio Água Limpa	18°22'15.72" S, 40°08'30.24" W	79
PT 72	Ponto Belo	Estrela do norte. Cachoeira Estrela do Norte	18°19'41.38" S, 40°34'30.29" W	144
PT 73	Rio Bananal	Cacoeira do Ataídes	19°15'03.8" S, 40°17'10.9" W	53
PT 74	Rio Bananal	São Judas. Cachoeira São Judas	19°21'26.6" S, 40°28'54.5" W	271
PT 75	Santa Leopoldina	Águas Encantadas. Rio Encantado	19°57'37.6" S, 40°28'39.8" W	305
PT 76	Santa Leopoldina	Águas Encantadas. Rio Encantado, trecho 2	19°57'37.7" S, 40°28'43.2" W	317
PT 77	Santa Leopoldina	Águas Encantadas. Rio Temporário. Frente casa de Aldalice	19°57'38.2" S, 40°28'44.5" W	66
PT 78	Santa M ^a Jetibá	Barra do Rio Possmoser. Cachoeira do Pastor	20°04'21.3" S, 40°47'07.8" W	774
PT 79	Santa M ^a Jetibá	Encontro dos rios Santa Maria e Possmoser	20°04'26.4" S, 40°47'02.2" W	784
PT 80	Santa Teresa	Casa Marinês. Rio Marinês	19°57'11.5" S, 40°28'24.5" W	319
PT 81	Santa Teresa	Santa Bárbara. Cachoeira Strutz	19°50'06.1" S, 40°43'46.0" W	169
PT 82	Santa Teresa	São Sebastião. Cachoeira Carlini	19°52'29.0" S, 40°43'46.0" W	201
PT 83	Santa Teresa	Caldeirão. Cachoeira Zanotti	19°55'17.4" S, 40°44'38.3" W	448
PT 84	Santa Teresa	Pousada Di La Fontella. Rio	19°59'29.6" S, 40°30'32.2" W	393
PT 85	São Gabriel da Palha	Rio São José	19°03'03.0" S, 40°31'52.3" W	241
PT 86	Serra	Ponte do Bagaço. Rio	19°03'34.63" S, 40°22'42.91" W	22
PT 87	Serra	Queimados. Rio Santa Maria	20°11'08.97" S, 40°23'8.23" W	33
PT 88	Sooretama	Pampulha. Rio São José	19°07'34.31" S, 40°14'27.22" W	35
PT 89	Sooretama	Lagrimal. Rio São José	19°08'05.3" S, 40°14'23.9" W	-7
PT 90	Sooretama	Reserva Sooretama. Cachoeira Bonjardim	18°59'56.5" S, 40°14'01.4" W	39
PT 91	Vila Pavão	Todos os Anjos. Rio São Mateus	18°38'37.32" S, 40°41'44.20" W	141
PT 92	Vila Pavão	Conceição do 15. Rio 15 de setembro	18°32.57.66" S, 40°39'8.24" W	199
PT 93	Vila Valério	São João de Barra Seca. Rio Barra Seca	18°50'45.78" S, 40°21'13.62" W	89

DF, AP, PA, RR, TO, AL, BA, CE, PE, SP, MG, RJ and ES (Afonso Cláudio*, Águia Branca*, Alegre*, Alfredo Chaves, Aracruz, Barra de São Francisco*, Boa Esperança*, Brejetuba*, Castelo*, Domingos Martins*, Dolores do Rio Preto*, Ecoporanga*, Fundão*, Ibiracú, Itaguaçu*, Itarana*, Jaguaré*, João Neiva*, Linhares, Montanha*, Pancas*, Ponto Belo*, Rio Bananal*, Santa Leopoldina, Santa Maria de Jetibá*, Santa Teresa*, São Gabriel da Palha*, Serra, Sooretama*, Vila Pavão* and Vila Valério*).

Comments: Distribution increased in the state. It lives in small rivers with moderate current, attached to aquatic plants, leaves or branches of submerged and riffle litter stream.

Material examined: PT 01, (51L, 16P), 15.ii.2011; PT 02, (25L, 44P), 15.ii.2011; PT 03, (22L, 11P), 16.ii.2011; PT 04, (80L, 23P), 16.ii.2011; PT 05, (776L, 31P), 16.ii.2011; PT 06, (5L, 1P), 12.i.2011; PT 07, (1L), 28.iii.2011; PT 08, (2L, 3P), 27.v.2011; PT 09, (32L, 13P), 28.v.2011; PT 10, (9L), 27.x.2010; PT 12, (5L), 29.x.2010; PT 13, (113L, 1P), 14.x.2010; PT 14, (7L, 19P), 24.ii.2011; PT 16, (158L, 11P), 21.i.2011; PT 17, (2L), 08.xii.2010; PT 19, (1L, 3P), 17.ii.2011; PT 21, (242L, 16P), 17.ii.2011; PT 22, (3L), 17.ii.2011; PT 30, (1L), 08.vi.2011; PT 34, (35L, 7P), 27.viii.2010; PT 35, (64L, 26P), 28.viii.2010; PT 37, (3L, 2P), 28.viii.2010; PT 38, (27L, 3P), 30.viii.2010; PT 45, (1L), 25.iii.2011; PT 46, (11L), 19.i.2011; PT 47, (1L), 19.i.2011; PT 48, (4L, 1P), 02. Xii.2010; PT 49, (109L, 214P), 14.iv.2011; PT 50, (1L), 07.xi.2011; PT 55, (2L), 07.ii.2011; PT 56, (1L), 10.ii.2011; PT 57, (233L, 14P), 10.ii.2011; PT 58, (2L), 17.xii.2010; PT 59, (13L), 10.x.2010; PT 60, (21L, 4P), 07.v.2011; PT 62, (32L, 1P), 28.i.2011;

PT 64, (55L, 12P), 10.xii.2010; PT 65, (9L), 17.i.2011; PT 67, (14L, 5P), 26.i.2011; PT 72, (15L), 13.xii.2010; PT 73, (30L, 14P), 10.i.2011; PT 74, (104L, 23P), 28.i.2011; PT 76, (2L), 12.xi.2010; PT 77, (4L, 6P), 20.v.2011; PT 78, (53L, 4P), 09.ii.2011; PT 79, (20L, 33P), 09.ii.2011; PT 81, (36L, 2P), 08.ii.2011; PT 82, (1L, 12P), 08.ii.2011; PT 83, (29L, 8P), 08.ii.2011; PT 84, (1L), 11.vi.2011; PT 85, (3L, 1P), 14.i.2011; PT 86, (3L, 1P), 05.xi.2011; PT 88, (2L, 3P), 09.ix.2010; PT 89, (1L), 24.i.2011; PT 90, (220L, 172P), 09.v.2011; PT 91, (41L, 5P), 15.xii.2010; PT 92, (21L, 2P), 15.xii.2010 and PT 93, (117L, 10P), 17.xii.2010.

Simulium (Notolepria)

S. (N.) exiguum Roubaud, 1906

Geographical distribution: Venezuela, Argentina, Colombia, Ecuador, Guatemala, Guyana, Mexico, Panama, Peru, Brazil: PR, GO, MT, MS, DF, TO, RR, AM, BA, SP, MG, RJ and ES* (Afonso Cláudio*, Brejetuba*, Domingos Martins*, Ibitirama* and Santa Teresa*).

Comments: First record from Espírito Santo. Found in rivers with fast flow and crystal clear waters. Larvae and pupae live attached to rocks and branches of vegetation.

Material examined: PT 02, (14L, 19P), 15.ii.2011; PT 22, (3L), 17.ii.2011; PT 34, (7L, 2P), 27.vii.2010; PT 38, (1P), 30.viii.2010; PT 39, (2P), 18.ii.2011; PT 40, (2L), 18.ii.2011; PT 53, (3L, 6P), 01.vi.2011 and PT 80, (2L), 14.xi.2010.

Simulium (Psaroniocompsa)

S. (P.) oyapockense s.l. Floch & Abonnenc, 1946

Geographical distribution: French Guiana, Argentina, Bolívia, Colombia, Ecuador, Guyana, Paraguay, Uruguay, Venezuela and Brazil: PR, RS, MT, MS, AC, AP, AM, PA, RO, RR, TO, SP, MG and ES* (Boa Esperança*, Brejetuba*, Ecoporanga*, Pedro Canário*, Vila Pavão*).

Comments: First record from Espírito Santo. Found in large rivers with moderate to strong currents, attached to submerged vegetation.

Material examined: PT 17, (11L, 3P, 1A), 08.xii.2010; PT 18, (8L, 10P, 1A), 24.v.2011; PT 19, (1P), 17.ii.2011; PT 46, (11L, 2P), 19.i.2011; PT 70, (8L, 5P, 1A), 02.ii.2011; PT 91, (108L, 1P, 2A), 15.xii.2010 and PT 92, (12L, 2P), 15.xii.2010.

S. (P.) anamariae Vulcano, 1962

Geographical distribution: Brazil: RS, PA, SP, RJ and ES (Alfredo Chaves*, Domingos Martins*, Santa Leopoldina and Santa Teresa*).

Comments: The geographical distribution of the species increased in the state. Immatures have been found in small streams, clear water with moderate current supported by submerged branches or riffle litter the stream.

Material examined: PT 10, (1P), 27.x.2010; PT 36, (3P), 28.viii.2010; PT 37, (2P), 30.viii.2010; PT 75, (3P), 12.x.2010; PT 76, (6L), 12.xi.2010; PT 80, (54L, 3P), 14.xi.2010.

S. (P.) botulibranchium Lutz, 1910

Geographical distribution: Argentina and Brazil: PR, SP, RJ and ES* (Domingos Martins* and Castelo*).

Comments: First record from Espírito Santo. It lives in small rivers with clear water and low current supported by riffle litter and submerged leaves.

Material examined: PT 30, (10L), 08.vi.2011 and PT 42, (1L), 27.iii.2011.

S. (P.) petropoliense Coscarón 1981[1980]

Geographical distribution: Brazil: RJ and ES* (Domingos Martins*).

Comments: First record from Espírito Santo. Found in small rivers of cold waters and supported in by riffle litter and rocks.

Material examined: PT 38, (6L, 5P), 29.viii.2010.

S. (P.) clavibranchium Lutz, 1910

Geographical distribution: Argentina and Brazil: RS, SC, SP, MG, RJ and ES* (Domingos Martins*, Castelo* and Ibitirama*).

Comments: First record from Espírito Santo. Found in rivers with fast rapids and crystal clear waters.

Material examined: PT 30, (1L, 1P), 08.vi.2011; PT 38, (1P), 27.iii.2011 and PT 53 (1P).

S. (P.) inaequale Paterson & Shannon, 1927

Geographical distribution: Argentina, Bolívia, Costa Rica, Ecuador, Guyana, Panama, Paraguay, Peru, Venezuela and Brazil: PR, SC, RS, GO, MT, DF, AP, RR, TO, PB, BA, SP, MG, RJ and ES (Afonso Cláudio, Alegre*, Aracruz, Brejetuba*, Domingos Martins*, Dores do Rio Preto*, Fundão*, Ibiraju*, Ibitirama*, Pancas*, Pedro Canário*, Rio Bananal*, Santa Teresa*, Sooretama*, Vila Pavão* and Vila Valério*).

Comments: Species distribution increased in the state. Found in small shallow rivers, relying on rocks in places with rapids.

Material examined: PT 01, (1L, 5P), 15.ii.2011; PT 09, (3L, 2P), 28.v.2011; PT 15, (8P), 17.ix.2011; PT 20, (1L), 17.ii.2011; PT 37, (1P), 28.viii.2010; PT 43, (1L, 17P), 25.iii.2011; PT 48, (13L, 3P), 02.xii.2010; PT 49, (1P), 14.iv.2011; PT 53, (2L), 01.vi.2011; PT 67, (4L), 26.i.2011; PT 70, (7L), 02.ii.2011; PT 72, (1P), 13.xii.2010; PT 74, (1L), 28.i.2011; PT 81, (1P), 08.ii.2011; PT 84, (1L), 11.vi.2011; PT 90, (1L, 1P), 09.v.2011; PT 91, (1P), 15.xii.2010; PT 93, (2L), 17.xii.2010.

S. (P.) rappae Py-Daniel & Coscarón, 1982

Geographical distribution: Brazil: GO, SP, MG, RJ and ES* (Dores do Rio Preto*).

Comments: First record from Espírito Santo. Found in small rivers with strong currents and colder waters attached to riffle litter.

Material examined: PT 45, (2L, 1P), 25.iii.2011.

S. (P.) subnigrum Lutz, 1910

Geographical distribution: Argentina, Colombia, Ecuador, Panama, Paraguay, Trinidad, Venezuela and Brazil: PR, SC, RS, GO, MT, MS, DF, AP, RR, TO, BA, CE, PB, PE, RN, SP, MG, RJ and ES (Afonso Cláudio, Águia Branca*, Brejetuba*, Ibitirama*, Castelo*, Domingos Martins*, Dores do Rio Preto*, Fundão*, Ibiracú, Ibitirama*, Itaguaçu*, João Neiva*, Santa Leopoldina, Santa Teresa*).

Comments: Distribution increased in the state. Found in bodies of water with good current and clear water.

Material examined: PT 01, (1P), 15.ii.2011; PT 07, (1P), 28.iii.2011; PT 19, (1L), 17.ii.2011; PT 23, (17L, 3P), 29.v.2011; PT 24, (198L, 9P), 30.v.2011; PT 25, (54L), 30.v.2011; PT 26, (21L, 12P), 02.vi.2011; PT 27, (48P), 02.vi.2011; PT 29, (21L, 12P), 03.vi.2011; PT 30, (184L, 3P), 08.vi.2011; PT 34, (1P), 27.viii.2010; PT 37, (4L, 3P), 28.viii.2010; PT 39, (3L), 18.ii.2011; PT 40, (7L, 6P), 18.ii.2011; PT 42, (2P), 27.iii.2011; PT 44, (1P), 25.iii.2011; PT 45, (4L, 4P), 25.iii.2011; PT 48, (4L), 02.xii.2010; PT 49, (65L, 15P), 14.iv.2011; PT 50, (8L, 2P), 07.xi.2011; PT 52, (39L, 5P), 01.vi.2011; PT 55, (1L), 07.ii.2011; PT 60, (2L), 07.v.2011; PT 75, (75L, 15P), 12.x.2010; PT 76, (30L, 3P), 12.xi.2010; PT 77, (3L, 8P), 20.v.2011; PT 80, (36L, 1P), 14.xi.2010; PT 81, (11L, 3P), 08.ii.2011 and PT 84, (6L, 3P), 11.vi.2011.

S. (P.) travassosi d'Andretta & d'Andretta, 1947

Geographical distribution: Argentina and Brazil: PR, SC, RS, GO, SP, MG, RJ and ES (Viana and Santa Leopoldina*).

Comments: Distribution increased in the state. Found in low-order streams, attached to riffle litter.

Material examined: PT 77, (1L, 3P), 20.v.2011.

S. (P.) incrustatum Lutz, 1910

Geographical distribution: Argentina, Colombia, Ecuador, Panama, Paraguay, Trinidad, Venezuela and Brazil: PR, SC, RS, GO, MT, MS, DF, AP, RR, TO, BA, CE, PB, PE, RN, SP, MG, RJ and ES (Afonso Claudio, Águia Branca*, Alegre*, Alfredo Chaves, Aracruz, Brejetuba*, Castelo*, Domingos Martins*, Dores do Rio Preto*, Fundão*, Ibiracú*, Ibitirama*, Itaguaçu*, Itarana*, Jaguaré*, João Neiva, Linhares, Pancas, Ponto Belo, Santa Leopoldina*, Santa Maria de Jetibá, Santa Teresa*, Sooretama*, Vila Pavão* and Vila Valério*).

Comments: Species distribution increased in the state. Found in rivers of clear water, steady stream attached to riffle litter, submerged aquatic plants or branches.

Material examined: PT 03, (8L, 1P), 16.ii.2011; PT 04, (83L, 14P), 16.ii.2011; PT 06, (1L), 12.i.2011; PT 08, (5L, 2P), 27.v.2011; PT 09, (1L), 28.v.2011; PT 10, (189L, 65P), 27.x.2010; PT 11, (2L), 28.x.2010; PT 12, (62L, 7P), 29.x.2010; PT 15, (2P), 17.ix.2011; PT 20, (6L, 1P), 17.ii.2011;

PT 21, (73L, 9P), 17.ii.2010; PT 28, (5P), 03.vi.2011; PT 29, (1L, 12P), 03.vi.2011; PT 31, (2L, 5P), 08.vi.2011; PT 34, (348L, 116P), 27.viii.2010; PT 35, (844L, 346P), 28.viii.2010; PT 36, (92L, 27P), 29.viii.2010; PT 37, (69L, 76P), 28.viii.2010; PT 38, (1L, 5P), 30.viii.2010; PT 39, (1L), 18.ii.2011; PT 40, (6L, 4P), 18.ii.2011; PT 44, (1P), 25.iii.2011; PT 45, (1L, 4P), 25.iii.2011; PT 46, (11L, 1P), 19.i.2011; PT 48, (1L), 02.xii.2011; PT 49, (23L, 13P), 14.iv.2011; PT 53, (5L, 10P), 01.vi.2011; PT 55, (2L, 2P), 07.ii.2011; PT 56, (1L), 10.ii.2011; PT 57, (24L, 1P), 10.ii.2011; PT 58, (1L), 17.xii.2010; PT 59, (54L, 45P), 10.x.2010; PT 60, (12L, 2P), 07.v.2011; PT 62, (19L, 1P), 28.i.2011; PT 67, (1P), 26.i.2011; PT 72, (7L, 1P), 13.xii.2010; PT 75, (19L, 4P), 12.x.2010; PT 76, (11L, 14P), 12.xi.2010; PT 77, (2L), 20.v.2011; PT 78, (1L), 09.ii.2011; PT 80, (3L), 14.xi.2010; PT 82, (1L, 1P), 08.ii.2011; PT 83, (76L, 10P), 08.ii.2011; PT 89, (1L), 24.i.2011; PT 90, (26L, 7P), 09.v.2011; PT 91, (6L), 15.xii.2010; PT 92, (6L), 15.xii.2010 and PT 93, (10L), 17.xii.2010.

S. (P.) jujuyense Paterson & Shannon, 1927

Geographical distribution: Argentina, Bolivia, Colombia, Ecuador, Paraguay, Uruguay and Brazil: PR, SC, RS, GO, MT, MS, TO, DF, BA, SP, MG, RJ and ES (Alfredo Chaves, Montanha and Brejetuba*).

Comments: Distribution increased in the state. Found in small rivers of moderate flow and clear waters, attached to aquatic plants, branches or submerged vegetation.

Material examined: PT 21, (29L, 1P, 2A), 17.ii.2011.

S. (P.) limbatum Knab, 1915

Geographical distribution: Guyana, Venezuela and Brazil: MT, PA, RR, AP, BA, PB, PE, SP, RJ and ES (Águia Branca*, Alfredo Chaves, Aracruz*, Fundão*, Montanha* and Sooretama*).

Comments: Distribution increased in the state. Found in rivers with moderate current, attached to riffle litter or submerged branches.

Material examined: PT 07, (10L, 44P, 2A), 28.iii.2011; PT 10, (5P), 27.x.2010; PT 14, (2L, 9P, 1A), 24.ii.2011; PT 48, (1P), 02.xii.2010; PT 64, (1L, 5P), 10.xii.2010 and PT 90, (130L, 24P, 2A), 09.v.2011.

S. (P.) minusculum Lutz, 1910

Geographical distribution: Argentina, Guyana, Venezuela and Brazil: SC, RS, GO, MT, AM, PA, RO, RR, TO, BA, MA, PI, SP, MG and ES* (Santa Teresa*).

Comments: First record from Espírito Santo. Found in large rivers on submerged leaves or branches in places with strong currents.

Material examined: PT 83, (3L, 3P, 2A), 08.ii.2011.

Simulium (Psilopelmia)

S. (P.) dinelli (Joan, 1912)

Geographical distribution: Argentina, Bolivia, Colombia, Ecuador, Peru, Brazil: SC, SP, RJ and ES* (Castelo*, Domin-

gos Martins*, Fundão*, Itarana*, Santa Leopoldina* and Santa Teresa*).

Comments: First record from Espírito Santo. It lives in small streams, clear water, submerged vegetation or supported by the current riffle litter and in places with moderate current.

Material examined: PT 32, (3L, 5P), 09.vi.2011; PT 41, (3L), 25.ii.2011; PT 42, (2L, 2P), 27.iii.2011; PT 48, (114L, 31P), 02.xii.2010; PT 57, (21L, 2P), 10.ii.2011; PT 75, (1L, 21P), 12.x.2010; PT 76, (132L, 49P), 12.xi.2010; PT 77, (3L, 3P), 20.v.2011 and PT 81, (1P), 08.ii.2011.

S. (P.) near ochraceum Walker, 1861

Geographical distribution: México, Belize, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, French Guiana, Guadeloupe, Guatemala, Jamaica, Montserrat, Panama, Peru, Puerto Rico, Trinidad, Venezuela, Virgin Islands, Dominica and Brazil: AM, RR, SP, RJ and ES* (Domingos Martins*, Fundão*, Santa Leopoldina* and Santa Teresa*).

Comments: First record from Espírito Santo. Only larvae were collected, in this it is not possible to certify the specific status of these specimens. Larval morphology is similar to the one of *S. ochraceum*, further collection will be needed to assigned the species. Larvae were found in small streams, clear water with moderate flow, attached riffle litter or submerged vegetation.

Material examined: PT 40, (1L), 18.ii.2011; PT 41, (1L), 25.iii.2011; PT 48, (23L), 02.xii.2010; PT 75, (85L), 12.x.2010; PT 76, (64L), 12.xi.2010 and PT 84, (3L) 11.vi.2011.

S. (P.) perflavum Roubaud, 1906

Geographical distribution: Argentina, Guyana, Paraguay, Venezuela and Brazil: PR, SC, RS, GO, MT, MS, AC, AP, AM, PA, RO, RR, BA, CE, PE, SP, MG, RJ and ES (Afonso Cláudio, Águia Branca*, Aracruz, Domingos Martins*, Dores do Rio Preto* and Ibiraçú).

Comments: Distribution increased in the state. Found in places with weak current, resting on rocks, submerged branches, in sunny spots. This species is associated with dams (Hamada & McCreddie 1999).

Material examined: PT 01, (15L, 32P), 15.ii.2011; PT 07, (7L, 57P), 28.iii.2011; PT 14, (2L, 9P), 24.ii.2011; PT 15, (17L, 71P, 7A), 17.ix.2011; PT 41, (1L), 25.iii.2011; PT 43, (2P), 25.iii.2011; PT 44, (1L), 25.iii.2011 and PT 49, (8P), 14.iv.2011.

S. (P.) lutzianum Pinto, 1932 [1931]

Geographical distribution: Venezuela, Argentina, Bolívia, Colombia, Costa Rica, Ecuador, Guyana, Panama, Peru and Brazil: PR, SC, GO, AM, RR, SP e ES (Alfredo Chaves, Castelo*, Domingos Martins*, Itarana* and Santa Maria de Jetibá*).

Comments: Distribution increased in the state. They live in rivers with regular flow, attached to submerged aquatic plants or branches.

Material examined: PT 10, (9L), 27.x.2010; PT 11, (49L, 1P), 28.x.2010; PT 12, (1L), 29.x.2010; PT 31, (1P), 08.vi.2011; PT 39, (2L), 18.ii.2011; PT 56, (1L), 10.ii.2011; PT 57, (4L), 10.ii.2011 e PT 78, (65L), 09.ii.2011.

Simulium (Trichodagmia)

S. (T.) guianense Wise, 1911 [1912]

Geographical distribution: Guyana, French Guiana, Suriname, Venezuela and Brazil: PR, SC, GO, MT, AP, AM, PA, RR, TO, MA, SP, MG, RJ and ES (Boa Esperança*, Itarana*, Jaguaré*, Montanha*, Pedro Canário*, Pinheiros*, São Gabriel da Palha*, Sooretama*, Vila Pavão* and Vila Valério*).

Comments: Species distribution increased in the state. Found in shallow rivers with strong currents, resting on rocks, roots, submerged vegetation.

Material examined: PT 17, (1912L, 226P), 08.xii.2010; PT 18, (6L, 5P), 24.v.2011; PT 56, (29L), 10.ii.2011; PT 58, (385L, 20P), 17.xii.2010; PT 65, (41L, 8P), 17.i.2011; PT 69, (3L, 2P), 02.ii.2011; PT 70, (20L, 8P), 02.ii.2011; PT 71, (45L, 32P), 18.viii.2010; PT 85, (92L, 60P), 14.i.2011; PT 88, (1134L, 294P), 09.ix.2010; PT 89, (900L, 28P), 24.i.2011; PT 91, (103L, 23P), 15.xii.2010; PT 92, (193L, 49P), 15.xii.2010 and PT 93, (110L, 15P), 17.xii.2010.

S. (T.) hirtipupa Lutz, 1910

Geographical distribution: Brazil: RS, GO, MT, MS, AP, AL, BA, SP, MG, RJ and ES (Afonso Cláudio*, Águia Branca*, Alegre*, Alfredo Chaves*, Barra de São Francisco*, Brejetuba*, Domingos Martins*, Dores do Rio Preto*, Ibiraçú*, Itaguaçu*, Itarana*, João Neiva*, Linhares, Pancas*, Rio Bananal*, Santa Maria de Jetibá*, Santa Teresa* and Serra*).

Comments: Species distribution increased in the state. It lives in medium rivers with little depth and supported by stones.

Material Examined: PT 01, (248L, 29P), 15.ii.2011; PT 02, (3L, 2P), 15.ii.2011; PT 03, (111L, 25P), 16.ii.2011; PT 04, (10L, 3P), 16.ii.2011; PT 05, (26L, 1P), 16.ii.2011; PT 06, (354L, 1P), 12.i.2011; PT 08, (7L, 2P), 27.v.2011; PT 09, (33L, 1P), 28.v.2011; PT 11, (31L), 28.x.2010; PT 16, (580L, 115P), 21.i.2011; PT 20, (1P), 17.ii.2011; PT 34, (23L, 71P), 27.viii.2010; PT 35, (99L, 1P), 28.viii.2010; PT 39, (2P), 18.ii.2011; PT 43, (18L, 81P), 25.iii.2011; PT 47, (1739L, 156P), 19.i.2011; PT 49, (2L), 14.iv.2011; PT 50, (24L), 07.xi.2011; PT 55, (15L, 4P), 07.ii.2011; PT 56, (13L, 1P), 10.ii.2011; PT 57, (93L, 33P), 10.ii.2011; PT 60, (35L, 4P), 07.v.2011; PT 62, (1656L, 31P), 28.i.2011; PT 67, (2461L, 513P), 26.i.2011; PT 68, (848L, 119P), 26.i.2011; PT 74, (53L, 12P), 28.i.2011; PT 78, (291L, 50P), 09.ii.2011; PT 79, (6L, 10P), 09.ii.2011; PT 81, (14L, 7P), 08.ii.2011; PT 82, (1L, 3P), 08.ii.2011; PT 83, (211L, 37P), 08.ii.2011; PT 84, (8L, 6P), 11.vi.2011; PT 86, (75L, 6P), 05.xi.2011 and PT 87, (43L), 05.xi.2011.

S. (T.) nigrimanum Macquart, 1838

Geographical distribution: Colombia, Paraguay, Venezuela and Brazil: PR, GO, MT, MS, DF, PA, TO, SP, MG, RJ and ES (Afonso Cláudio, Águia Branca*, Alfredo Chaves, Barra de São Francisco*, Domingos Martins, Ibiraçú, Itaguaçu*, Itarana*, João Neiva*, Linhares, Pancas*, Santa Maria de Jetibá, Santa Teresa* and Serra*).

Comments: Distribution increased in the state. It lives in small rivers of clear water, strong currents, attached to rocks or submerged leaves.

Material examined: PT 01, (13L, 1P), 15.ii.2011; PT 05, (131L, 11P), 16.ii.2011; PT 06, (264L, 4P), 12.i.2011; PT 10, (39L, 3P), 27.x.2010; PT 16, (1P), 21.i.2011; PT 38, (1P), 30.viii.2010; PT 50, (9L, 1P), 07.xi.2011; PT 55, (80L, 11P), 07.ii.2011; PT 57, (7L, 3P), 10.ii.2011; PT 60, (46L, 15P), 07.v.2011; PT 62, (88L, 1P), 28.i.2011; PT 67, (137L, 47P), 26.i.2011; PT 78, (28L, 1P), 09.ii.2011; PT 79, (1L, 1P), 09.ii.2011; PT 81, (2P), 08.ii.2011; PT 82, (1L, 2P), 08.ii.2011; PT 83, (3L, 5P), 08.ii.2011; PT 84, (6L, 25P), 11.vi.2011; PT 86, (3L, 3P), 05.xi.2011.

S. (T.) scutistriatum Lutz, 1909

Geographical distribution: Colombia, Paraguay, Venezuela and Brazil: PR, GO, MT, TO, BA, SP, MG, RJ and ES* (Domingos Martins*, Itarana* and Santa Teresa*).

Comments: First record from Espírito Santo. It lives in clear water rivers resting on roots, plants or rocks.

Material examined: PT 36, (7L, 8P), 29.viii.2010; PT 38, (88L, 44P), 30.viii.2010; PT 57, (39L, 1P), 10.ii.2011; PT 81, (104 L, 5P), 08.ii.2011 and PT 83, (1P), 08.ii.2011.

S. (T.) brachycladum Lutz & Pinto, 1932 [1931]

Geographical distribution: Brazil: PR, GO, PE, BA, CE, RN, PB, SP, MG, RJ and ES (Águia Branca*, Aracruz, Barra de São Francisco*, Boa Esperança*, Ecoporanga*, Ibiracú*, Jaguaré*, Linhares*, Montanha*, Pedro Canário*, Pinheiros*, Ponto Belo*, Rio Bananal, Serra*, Vila Pavão* and Vila Valério*).

Comments: Species distribution increased in the state. Found on rocks in areas with strong current in rivers of regular size.

Material examined: PT 07, (20L, 57P), 28.iii.2011; PT 13, (402L, 10P), 14.x.2010; PT 14, (10L, 17P), 24.ii.2011; PT 16, (16L, 4P), 21.i.2011; PT 17, (178L, 7P), 08.ii.2011; PT 46, (55L, 7P), 19.i.2011; PT 49, (35L, 7P), 14.iv.2011; PT 58, (18L), 17.xii.2011; PT 62, (26L, 1P), 28.i.2011; PT 64, (11351L, 70P), 10.xii.2010; PT 65, (239L, 61P), 17.i.2011; PT 69, (747L), 02.ii.2011; PT 70, (16L, 6P), 02.ii.2011; PT 71, (70L, 24P), 18.viii.2010; PT 72, (1288L, 18P), 13.xii.2010; PT 73, (821L, 33P), 10.i.2011; PT 74, (16L, 2P), 28.i.2011; PT 86, (11L, 3P), 05.xi.2011; PT 87, (5L), 05.xi.2011; PT 90, (8L), 09.v.2011; PT 92, (17L), 15.xii.2010 and PT 93, (5L), 17.xii.2010.

S. (T.) lobatoi Luna Dias, Hernández, Maia-Herzog & Shelley, 2004

Geographical distribution: Brazil: GO, MT, BA and ES* (Afonso Cláudio*, Brejetuba*, Itaguaçu*, João Neiva*, Linhares*, Pancas*).

Comments: New record from Southeastern region. Found in small rivers, strong currents, supported by rocks.

Material examined: PT 05, (9P), 16.ii.2011; PT 22, (9P), 17.ii.2011; PT 55, (118L, 40P), 07.ii.2011; PT 60, (1P), 07.v.2011; PT 62, (36L, 15P), 28.i.2011 and PT 67, (1P), 26.i.2011.

S. (T.) rubrithorax Lutz, 1909

Geographical distribution: Argentina, Bolívia, Colombia, Venezuela and Brazil: PR, SC, RS, GO, MT, RR, BA, CE, SP, MG, RJ and ES (Afonso Cláudio*, Brejetuba*, Castelo*, Domingos Martins*, Itaguaçu*, Itarana*, Rio Bananal*, Santa Leopoldina, Santa Maria de Jetibá*, Santa Teresa).

Comments: Distribution increased in the state. It lives in bodies of water with strong currents and crystal clear waters attached to rocks.

Material examined: PT 05, (10L, 2P), 16.ii.2011; PT 20, (1L), 17.ii.2011; PT 22, (4P), 17.ii.2011; PT 30, (2L, 1P), 08.vi.2011; PT 37, (12L), 28.viii.2010; PT 38, (1P), 30.viii.2010; PT 55, (2979L, 27P), 07.ii.2011; PT 56, (192L, 86P), 10.ii.2011; PT 57, (6L), 10.ii.2011; PT 74, (8L, 5P), 28.i.2011; PT 75, (728L, 11P), 12.x.2010; PT 76, (1L), 12.xi.2010; PT 77, (34L, 5P), 20.v.2011; PT 79, (1L), 09.ii.2011; PT 80, (55L), 14.xi.2010 and PT 81, (815L, 179P), 08.ii.2011.

CONCLUSIONS

Prior to the present study, Espírito Santo was known to have 17 species of the family Simuliidae, all belonging to the genus *Simulium* (Bertazo *et al.* 2010). Besides increasing the number of known species to 30, the present study revealed the presence of another genus, *Lutzsimulium*.

As pointed out initially, the low number of species recorded from Espírito Santo up to the present study reflected the lack of field collections in the state. In two years it was possible to raise the number of species recorded from 17 to 30, a value that approximates that of Rio de Janeiro (38 species), one of the Brazilian states where the simuliid fauna has been most intensively studied. We believe that the number of black fly species in Espírito Santo will rise even more, since in the present study only small rivers and streams were examined and there are gaps for the southern and the littoral parts of the state, neither of which were sampled.

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