

Notes on *Salyavata* Amyot & Serville, 1843 (Heteroptera: Reduviidae: Salyavatinae)

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A new species of the neotropical reduviid genus *Salyavata* Amyot & Serville, 1843, *Salyavata macmahanae* spec. nov. is described from Costa Rica, Nicaragua, Guatemala, Belize and Mexico. *Salyavata variegata* Amyot & Serville, 1843, is reported for the first time from Suriname.

Introduction

Wygodzinsky (1943) published an excellent revision of the neotropical reduviid genus *Salyavata* Amyot & Serville, 1843. He designated a neotype for the type species *S. variegata* Amyot & Serville, 1843, a female from Benjamin Constant, Amazonas, Brazil and included two species, *S. nigrofasciata* Costa Lima, 1935 (a male from 'Bahía, Vila Nova' [Mato Grosso? Brazil]), and a new species, *S. cornuta* Wygodzinsky, 1943, based on a female from Pará, Brazil. In 1948 he described the male of *Salyavata variegata* from Rio Autaz, Amazonas, Brazil. In 1955 Maldonado Capriles added a fourth species: *Salyavata wygodzinskyi*, describing a male from Venezuela. Brailovsky & Peláez (1978) reported the find of three female *Salyavata* specimens in Mexico, Jalisco, naming them *S. variegata*. They were aware of some differences, but could not evaluate these for lack of a male specimen.

During his stay 1957-1963 in Suriname the first author collected many specimens of *Salyavata variegata* at light at the estate "De Morgenstond", the place where he resided for about four years. Only one male was found among them, and another male (in copula) was later collected in Albina. Some supplementary aspects of the male and female of *Salyavata variegata* are presented here.

In the Leiden museum, one of the four specimens in the old collection stored under *Salyavata variegata* proved to belong to a new species described below.

The feeding habits of *Salyavata* were discovered and described by McMahan (1982, 1983a+b). They proved to be highly specialized predators of two *Nasutitermes* species: *N. corniger* (Motschulsky) and *N. ephratae* (Holmgren), as determined by Dr Kumar Krishna.

Subfamily Salyavatinae Amyot & Serville, 1843

Salyavatinae Amyot & Serville, 1843, (as Salyavatides); Stål, 1859: 191 (Salyavatides); Stål, 1872: 120, 1874: 80, (Salyavatina); Champion, 1898: 190; Miller, 1971: 109; Froeschner, 1981: 78; Wygodzinsky

& Lodhi, 1989: 377, 382, figs 8F-K (antennal trichobothria); Maldonado Capriles, 1990: 488; Schuh & Slater, 1996: 158; Froeschner, 1999: 225.

Diagnosis (after Froeschner, 1981).

Body not stick-like, venter of head without longitudinal groove; antenniferous tubercles strong dorsally, projecting beyond apex of head; antennal segment 2 simple; ocelli present behind eyes; transverse pronotal constriction anterior of middle; pronotal margins, scutellum and sides of abdominal segments with strong spines; anterior tarsi 2-segmented.

The reduviid subfamily Salyavatinae is predominantly extant in the Old World, and in the neotropics represented only by the genus *Salyavata* Amyot & Serville, 1843.

Genus *Salyavata* Amyot & Serville, 1843

Salyavata variegata Amyot & Serville, 1843

(figs 1, 3, 4, 8)

Salyavata variegata Amyot & Serville, 1843: 350, pl. 6, fig. 6, Type (Paris, lost?). Walker, 1873: 7. Stål, 1872: 120. Stål, 1874: 80. Champion, 1898: 190, pl. 11, fig. 25, 25a (in part). Costa Lima, 1935: 24; 1940: 211. Wygodzinsky, 1943: 5, figs 1-9, neotype, ♀; 1948: 564, figs 11-17. Miller, 1971: 94, fig. 28-11 (egg). Lubin, 1983: 745 (Panama). Maldonado Capriles, 1990: 488. Schuh & Slater, 1996: 160. Froeschner, 1999: 225 (in part).

Material.— **Suriname**, 11 ♂♂, 30 ♀♀ (RMNH): 1 ♂, 1 ♀, (in copula?) “Saramacca exp. Dr Kok 1903” [Dr P.J. de Kock] / *Salyavata variegata* A&S det. Blöte; 1 ♀ Suriname, Republiek, 13.x.1946, “in bosch op [in forest on] *Asterocaryum* - Awarra stam” [*Asterocaryum segregatum* Drude], D.C. Geijskes; 1 ♀, Coppenname river, Raleigh Falls, 16.vii.1963, J.W. Broekhuizen; collected by the first author in Suriname: 1 ♀, Paramaribo, 14.xii.1957, *Salyavata variegata* A. & S. Wygodzinsky det. [1963]; 1 ♀, idem, 12.iv.1961; 6 ♀♀, estate “De Morgenstond”, on light, 10.xi.1957-11.i.1958; 13 ♀♀, idem, 2.xii.1958-16.i.1959; 1 ♀, idem, 8.iii.1959; 1 ♂, idem, #580, 19/20.v.1960; 1 ♀, idem, 13.v.1961; 1 ♂, 1 ♀, in copula, Albina, 28.vi.1963. **Colombia** (determined and communicated by D. Forero), **Antioquia**: San Luis, Río Claro, Porce, Cocorná, Turbo, Mutatá, Villa Arteaga; **Chocó**: Riosucio; **Cundinamarca**: Yacopí; **Meta**: Puerto Gaitán; **Santander**: Opón, Pto. Araujo; **Valle del Cauca**: Buenaventura, Alto Anchicayá; Magdalena?: 1 ♀ (AMNH), Putumayo, El Pueblito, Parque Nacional Tairona, Sierra Nevada de S. Marta, 230-290 m, 19-21.vii.1970, B. Malkin & P. Burchard (det. Wygodzinsky). **Panama**, 1 ♀ (UNAM), Balboa, Canal Zone, 22.vi.1974, M.L. Siri; 8 ♂♂, 2 ♀♀ (RMNH), Panama, Gamboa, vi-vii.1985, E.A. McMahan; 2 ♂♂, 1 ♀ (AMNH), C.Z., Coco Solo Hosp., light trap, resp. 16, 27, 17.v.1973, D. Engleman (det. Maldonado C., 1972).

Supplementary descriptions of the male and female. A yellow longitudinal stripe laterad of the ocelli and a large yellow dot posterior of the eyes; antennae consist of four segments, the last two segments are delicate and often the last one is broken-off; the second segment proximally yellow; the lengths of the antennal segments of the female from Paramaribo are: (both sides measured): 2.35, 4.2, 2.0 and 0.95 mm; tibiae basally yellow; lateral part of the S-shaped white spot on the fore wings (in rest position) very small; tibiae proximally yellow, central black annulus short; meso- and metapleurae with large yellow spots. Apart from the external genitalia and the somewhat smaller size, the male differs otherwise not apparently from the female. Close examination, however, reveals the following differences. In the male the ocelli are



Figs 1-6, *Salyavata* species. Figs 1, 3, 4, *Salyavata variegata* Amyot & Serville, 1843. 1, end of female abdomen, lateral aspect, bar = 1mm; 3, right paramere, bar = 0.2 mm; 4, median process of pygophore, bar = 0.5 mm. Figs 2, 5, 6, *Salyavata macmahanae* spec. nov., similar parts and dimensions as in *S. variegata*.

smaller; the posterior margin of the seventh tergite bearing the last pair of abdominal spines, is in the female straight, in the male posteriorly produced; these spines in the male basally widened, more parallel directed and apically faintly recurved. Striking for both sexes of *variegata* are the somewhat anteriorly inflated, prominent, reddish-yellow coloured maxillary plates. The right paramere and the median process of pygophore is shown in figures 3 and 4 respectively. In the female (fig. 1) the ninth gonocoxites long, the overlying tenth tergite low. Length of the specimens measured along the median (without the projected antenniferous tubercles and the posterior spines).

Measurements.- Females from estate "De Morgenstond" varying from 13.8-14.7 mm, with a mean of 14.16 (22 measured). The male specimen measures 12.9 mm, just as the male specimen from Albina. The male from the Saramacca expedition is 13.7 mm, the female 15.2 mm. The female from the Raleigh Falls is 15.5 mm, female from Republiek, 15.6 mm. Panama: 3 ♀♀, mean 13.9 mm, 7 males, mean 13.6 mm, 1 male 12.4 mm.

Distribution (fig. 8).— Northern part of South America: French Guyana: ("Cayenne", Amyot & Serville, 1843, original type locality); Suriname: (this paper); Guyana (Champion, 1898); Brazil: Pará (Costa Lima, 1935), Amazonas: Benjamin

Constant (neotype, ♀), Maués (Wygodzinsky, 1943), Rio Autaz (Wygodzinsky, 1948); Colombia: Bogotá (Wygodzinsky, 1948), several provinces, (this paper); Bolivia: (Maldonado Capriles, 1990); Panama: Bugaba (Champion, 1898), Gamboa (this paper).

Notes.— Plantage (= estate) “De Morgenstond”, District Suriname (5°52' N-55°06' W), is situated on the left bank of the Suriname River, close to its mouth, about six km ENE of Paramaribo. It was an abandoned coffee estate with old shade trees (“koffie-mama”, *Erythrina glauca* Willd.). The bank of the river was for about thirty meters inland covered by a mangrove vegetation, dominated by Parwa (*Avicennia* spec.). The area is now populated.

Republiek, district Para, is a small village (5°30' N-55°12' W) at the Coropina kreek [creek], a left-side tributary of the Para river.

Albina, district Marowijne (5°29' N-54°04' W), is a small village on the left (west) bank of the Marowijne river.

Raleigh Falls, a large system of rapids in the Coppename River, District Saramacca (4°43' N-56°12.5' W).

The Saramacca expedition, led by lieutenant A.J. van Stockum (1905), lasted from November 1902 till May 1903. The collector of zoological specimens was the physician Dr P.J. de Kock.

The locality label of the Columbian specimen collected by Malkin & Burchard shows a mix of three localities from which the Tayrona National Park in the Magdalena Department is the most likely as *variegata* is considered to be a lowland species.

The specimens from Panama (Canal zone, Balboa, (8°56'N-79°33'W); Gamboa (9°7' N-79°42.2' W)) are slightly differently marked from those from Suriname. The pronotal lateral spines, especially the anterior are shorter, the abdominal spines have more black at apex and their bases are totally black, while in *variegata* the yellow of the spines runs down into the black part of the tergal margin, the yellow S-shaped marking of the hemelytra lacks its anterior curl, showing a faint long streak instead.

Salyavata macmahanae spec. nov.
(figs 2, 5-8)

Salyavata variegata; Champion, 1898: 190, (in part: Nicaragua, Chontales); Brailovsky & Paláez, 1978: 171-173, figs 1-3; Maldonado Capriles, 1990: 488 (in part: Mexico, Nicaragua) ; McMahan, 1982: 346 ff, figs 2, 3, 1983a: 483 ff, figs 1-3, 1983b: 40ff, figs (Costa Rica); McGavin, 1993: 158, fig. (Costa Rica).

Material.— Holotype, ♂ (RMNH), Panzós, **Guatemala**. Paratypes: **Nicaragua**, 1 ♂ (MEL, photographs seen), Nueva Guinea, Zelaya, 1.iii.1983, Luz U.V., J.J. Rodriguez / *Salyavata variegata* Amyot et Serv. det. J. Maldonado C. 1986; **Costa Rica**, **Heredia**, 1 ♂, 1 (AMNH), La Selva Sta., vi.1980, E.A. McMahan; 3 ♀♀ (one missing head and pronotum) (RMNH), La Selva Biol. Sta., 1982, E.A. McMahan; 1 ♂ (AMNH), Esquinas nr Golfito Dept., Puntarenas, 1948, P. & D. Allen; **Belize**, 1 ♀ (AMNH), British Honduras, C.A., Punta Gorda, iii.1933, Purchsd. of Parish; **Mexico**, 1 ♀ (UNAM), 1 ♀ (RMNH), **Jalisco**, Chamela, Estacion Biologica, bl. (at light), 23.vi and 3.xii.1976, H. Brailovsky; 1 ♂ (UNAM), id., noct. (at light), 23.viii.1979, A. Gurrola; 1 ♀, id., trampa de luz, 7.ix.1985, R.A. Usela; 1 ♀ (UNAM), 1 ♀ (RMNH), id., bl., 16/19.x and 21/22.x.1987, Chemsak & Powell; 1 ♀ (UNAM), **Quintana Roo**, Chun-yaxché, 2-vii-85, A. Martínez / Colección del Instituto de Biología, UNAM. México, D.F.



Fig. 7. *Salyavata macmahanae* spec. nov., female paratype from La Selva, Costa Rica. (Postero-lateral spines of pronotum are broken off). Length is 15.7 mm.

Holotype, ♂, length 14.5 mm.

Closely related to *S. variegata* Amyot & Serville and in first appearance very alike, except for the following differences: larger, head laterad of ocelli and posterior of eyes black, bases of second antennal segments black, meso and metapleurae black; postero-lateral spines of the pronotum are straight and much longer, its apical 1/3 black, bases of abdominal spines totally black, bases of tibiae black, fossula spongiosa of fore tibia shorter, oblong-egg shaped, about one ninth of tibial length; the lateral part of the white S-shaped spot at the central part of the forewing (in rest position) large, distally extended along costal margin; pygophore ventrally blackish-brown, sides largely black, leaving anteriorly a small dot and posteriorly a narrow margin yellow; median process of pygophore (fig. 5) larger, parameres (fig. 6) with a very broad apical part and a small hook.

In the female (paratypes) the spines of the seventh abdominal segment (last pair) are relatively short, and slightly converging; margins of the eighth gonocoxites bordered; the tenth tergite, situated as a semicircular wall behind (above) the ninth gonocoxites almost as high as these as seen from the side (fig. 2).

In *S. variegata* the postero-lateral spines are smaller, a little curved, and apically only a little blackened, the abdominal spines are posteriorly yellow, which colour continues into the black part of the tergal margin, fossula spongiosa oblong oval, proximally narrowed, its length about one sixth of the length of the tibia; the parameres (fig. 3) are more slender and have a larger hook, median process of pygophore (fig. 4) more slender; the last pair of abdominal spines longer and

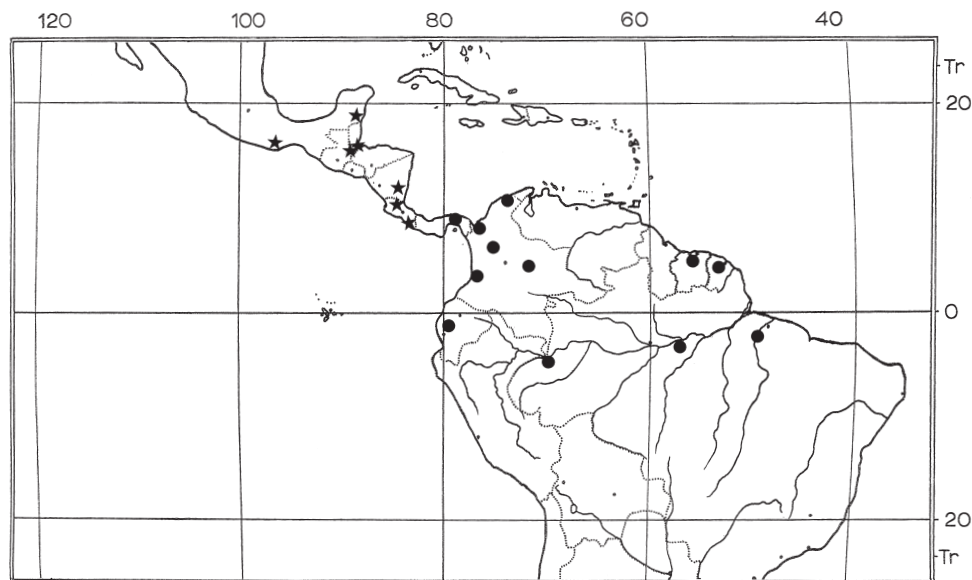


Fig. 8. Known distribution of *Salyavata* species; ● = *Salyavata variegata* Amyot & Serville, 1843; ★ = *Salyavata macmahanae* spec. nov.

diverging; eighth gonocoxites only very finely bordered; tenth tergite much lower than the adjacent ninth gonocoxites (fig. 1, seen in profile).

Measurements.— Total lengths. 2 ♀♀, Costa Rica, 15.1 and 15.7 mm; 6 ♀♀ from Jalisco, 15.1–16.1 mm, mean almost 15.5 mm; ♀ from Quintana Roo, 15.5 mm; ♂ from Nicaragua, Nueva Guinea, 15 mm.

Distribution (fig. 8).— Costa Rica: (this paper); Nicaragua: (Champion, 1898; this paper); Guatemala: (this paper); Belize: (this paper); Mexico: (Maldonado, 1990; this paper).

Etymology.— It is a great pleasure to name this species after Dr Elisabeth A. McMahan who contributed important studies on the termite baiting behaviour of *Salyavata* (McMahan, 1982, 1983a) and donated the collected specimens including many nymphs to the Leiden National Museum of Natural History.

Notes.— The female from Quintana Roo, Chunyaxché, (Yucatan, 20°04' N–87°37' W) has a small yellow spot on the base of the tibiae. It seems desirable to check the male.

McMahan (1983a) discussed and depicted the pretarsus, tarsal claw and the fossula spongiosa (figs 2, 3) and described important biological observations and biometrics of adult and nymphal stages.

Finca La Selva Biological Field Station of the OTS (Organization for Tropical Studies), Costa Rica, prov. of Hereria, is situated 4 km SW of Puerto Viejo de Sarapiquí, in the northern part of the Braulio Carillo National Park, 10°26' N–83°59' W, altitudes ranging from 35 to 137 m (McDade & Hartshorn, 1994: 6). According to the Ecological Map of Costa Rica by Joseph A. Tosi (1969) in Janzen (ed., 1983; reduced version), La Selva is situated 10°24' N–84°02' W.

Panzós in Guatemala lies N of the Polochic River (15°24' N–89°38' W), on the bor-

der area of a large silted up western part of Lake Isabal where the river forms a delta into the lake. Who was the collector of the specimen from Panzós and how it came into the Leiden collection long ago is not known.

Nueva Guinea, Nicaragua, 10 km S of Rio Plata (11°41' N-84°28' W), Yolaina (low) Mountains, lowland rain forest, now destroyed. Zelaya department is now: R.A.A.S. = Region Autonoma Atlantico Sur.

The Estacion Biologica at Chamela (19°31' N-105°05' W), Jalisco, Mexico, is situated at sea level.

In Brailovsky & Paláez (1978: 173) under 'Discusión', last sentence, the colours of the tibial bases of the Brazilian and Mexican specimens are accidentally interchanged.

Our knowledge of the distribution of the *Salyavata* species is still poor. From large areas where the species could be expected, as Guyana, Venezuela, large parts of the Amazon basin, Honduras and El Salvador, no data are available. It may be interesting to compare the distribution of the two *Salyavata* species with that of the two *Nasutitermes* species involved.

Abbreviations

AMNH = American Museum of Natural History, New York, USA.

MEL = Museo Entomologico, S.E.A., Leon, Nicaragua.

RMNH = National Museum of Natural History, Leiden, The Netherlands.

UNAM = Instituto de Biología, Universidad National Autonoma de Mexico.

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