

# A new species of *Halobatopsis* (Heteroptera: Gerridae) from Minas Gerais (Brazil), with a key to the species

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*Abstract:* *Halobatopsis chrysocastanis* spec. nov. from Brazil is described, notes on the macropterous forms and a key to the species of *Halobatopsis* are given and their distribution is mapped.

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## Introduction

During an excursion to the north-west of Minas Gerais (Brazil) the species of *Halobatopsis* Bianchi described below was collected. As we need a name for a faunistical report and a description of the species did not fit in with other projects, it was decided to publish the description separately. The macropterous form of *Halobatopsis* species is usually found dealate. The only references to macropterous specimens found in literature are a short note on dealate specimens of *H. platensis* (Drake & Harris, 1941) and a note in a poorly accessible paper by Berg (1884). As we have some macropters with complete wings to our disposal we have added some notes on macropterous forms.

The genus *Halobatopsis* was erected by Bianchi (1896) to accommodate *Halobates platensis* Berg (1879). It belongs to the subfamily Trepobatinae and prior to 1960 it was placed in the Halobatinae. The genus is only known from a rather restricted area in the southern part of S. America (fig. 14) and now contains four species (Polhemus & Polhemus, 1995).

Measurements are in mm, based on alcohol specimens and represented as the range with the mean between brackets or as the mean value only. All specimens of the new species have been measured, one female was

lacking mid-tibiae and -tarsi. In antennae no difference was found in the length of the segments between the sexes of a species, so these values have been lumped for sexes in table 1.

The following abbreviations have been used. Apt.: apterous; deal.: dealate (macropterous with apical part of wings torn off); macr.: macropterous (with complete wings).

Specimens are mostly deposited in the Department of Parasitology, Institute of Biology, Federal University of Minas Gerais, Belo Horizonte, Brazil (DPIB); Nieser collection, Tiel, The Netherlands (NCTN) and Pelli collection, CEMIG, Conceição das Alagoas, Minas Gerais, Brazil (PCMG). Some specimens, notably of *H. delectus*, have been sent to various large museums.

The genus *Halobatopsis* can be recognised from other trepobatine genera in South America by the following set of characteristics (Andersen, 1982; Polhemus & Polhemus, 1995): eyes globular, in lateral view reaching halfway prothorax, first antennal segment shorter than second and third combined, third antennal segment about 1.5 times as long as second, mesosternum without extensive black markings posteriorly, middle tibia at least slightly longer than body length and hind tibia twice or more as long as tarsi.

*Halobatopsis chrysocastanis* spec. nov.

## Type material

Holotype: apt. ♂, Brazil, Minas Gerais, Rio Pandeiros at Januária-Pandeiros, just downstream of electricity-plant, 23.xi.1997, leg. N. Nieser (DPIB). Paratypes: same data as holotype, 3♂, 5♀ apt. (1♀ allotype DPIB, 3♂, 4♀ NCTN).

## Description

Apterous form (fig. 1). Dimensions. Body length ♂: 3.4-3.6 (3.45), ♀: 4.0-4.2 (4.1); width across mesoacetabula ♂: 1.65-1.73 (1.69), ♀: 2.11-2.20 (2.15); width of head ♂: 1.05-1.06 (1.05), ♀ 1.07-1.10 (1.08); width of pronotum ♂: 0.75-0.77 (0.76), ♀: 0.80-0.88 (0.83); shortest distance between eyes anteriorly ♂: 0.38-0.39 (0.38), ♀: 0.32-0.40 (0.38); median length of mesonotum ♂: 0.94-0.98 (0.96), ♀: 1.03-1.10 (1.07).

Colour of head and pronotum yellowish with antennae, marks on anteclypeus, basis and apex of rostrum, eyes and lateral patches on pronotum dark brown to blackish, interoculus with four to six small little contrasting brownish spots. Mesonotum golden brown without dark longitudinal stripes, laterally and on dorsal half of mesopleura a broad silvery-pruinoose band, females with a variable dark brown to blackish stripe halfway on mesopleura, absent in one specimen. Metanotum medially golden brown, laterally variably dark, first abdominal tergite from nearly totally dark in most specimens to brown with dark lateral margins; remaining abdominal tergites brownish with blackish sutures. Pattern of abdomen after drying obscured by a pale pruinoose layer. Venter yellowish to light orange-brown, fore femur pale in basal half to two

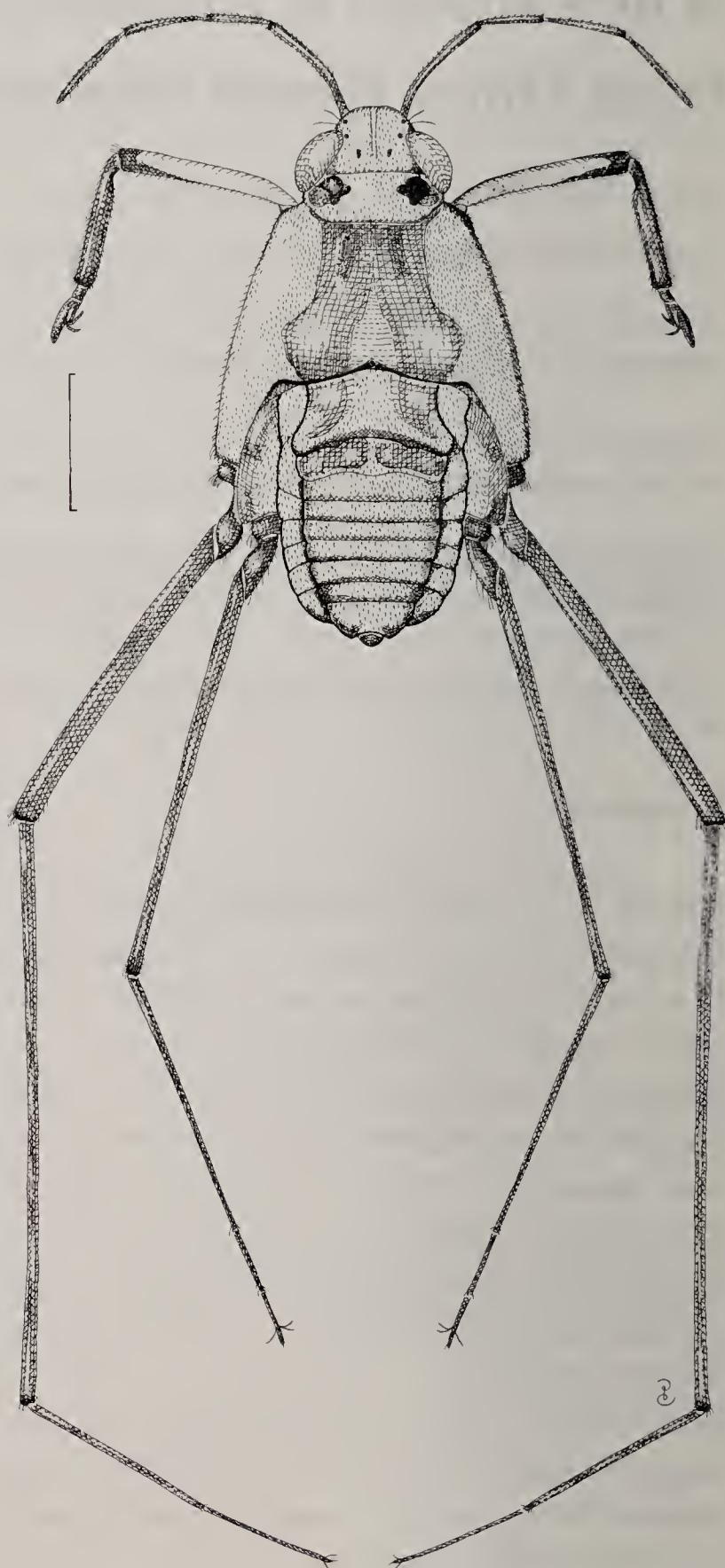


Fig. 1. Habitus of *Halobatopsis chrysocastanis* spec. nov., ♀ paratype. Scale line: 1 mm.

thirds, otherwise legs dark brown to blackish. Body dorsally and laterally with fine short black bristles very regularly arranged.

Table 1. Length of antennal segments in *Halobatopsis* of 6 apterous specimens (3♂, 3♀) of each species: mean value (standard deviation).

Antennal segment	I	II	III	IV
<i>H. chrysocastanis</i>	0.82 (0.036)	0.44 (0.025)	0.59 (0.020)	0.74 (0.027)
<i>H. delectus</i>	1.09 (0.037)	0.59 (0.018)	0.84 (0.056)	0.75 (0.047)
<i>H. platensis</i>	0.89 (0.046)	0.43 (0.021)	0.61 (0.021)	0.75 (0.033)
<i>H. spiniventris</i>	1.01 (0.013)	0.54 (0.038)	0.72 (0.048)	0.67 (0.039)

Table 2. Length of leg segments in *Halobatopsis* of 4 apterous ♂ and 5 apterous ♀ of each species: mean value (standard deviation).

	femur	tibia	tarsus 1	tarsus 2
males				
fore leg				
<i>H. chrysocastanis</i>	1.27 (0.030)	0.97 (0.018)	0.10 (0.008)	0.39 (0.012)
<i>H. platensis</i>	1.24 (0.033)	0.99 (0.014)	0.10 (0.013)	0.39 (0.014)
middle leg				
<i>H. chrysocastanis</i>	2.58 (0.043)	3.85 (0.064)	1.18 (0.039)	0.99 (0.074)
<i>H. platensis</i>	2.63 (0.116)	3.82 (0.064)	1.16 (0.065)	0.98 (0.039)
hind leg				
<i>H. chrysocastanis</i>	3.00 (0.041)	1.64 (0.029)	0.37 (0.048)	0.42 (0.049)
<i>H. platensis</i>	3.13 (0.096)	1.94 (0.119)	0.35 (0.054)	0.41 (0.021)
females				
fore leg				
<i>H. chrysocastanis</i>	1.34 (0.041)	1.01 (0.026)	0.11 (0.012)	0.44 (0.024)
<i>H. platensis</i>	1.35 (0.038)	1.06 (0.024)	0.12 (0.015)	0.43 (0.023)
middle leg				
<i>H. chrysocastanis</i>	2.81 (0.136)	4.08 (0.171)	1.30 (0.128)	1.02 (0.044)
<i>H. platensis</i>	2.97 (0.076)	4.24 (0.093)	1.35 (0.103)	1.09 (0.045)
hind leg				
<i>H. chrysocastanis</i>	3.20 (0.069)	1.93 (0.097)	0.40 (0.015)	0.42 (0.005)
<i>H. platensis</i>	3.39 (0.099)	2.12 (0.160)	0.44 (0.040)	0.49 (0.043)

First antennal segment weakly geniculate at base, length of segments see table 1. Distance between eyes anteriorly slightly over one third of width of head (0.38:1.07). Pronotum short, twice as wide as long (0.80:0.39), posterior margin hardly emarginate medially. Mesonotum large, about a quarter or slightly more as long as body (♂: 0.96:3.45, ♀: 1.07:4.1), not or very shallowly impressed laterally, posterior margin slightly sinuate to nearly straight. Abdominal tergites 1 and 2 medially fused in females, in males their suture is continuous, median length of tergites 1 and 2 together about one third the length of abdomen (0.50:1.55). Length of leg segments: table 2.

Male. Fore femur slightly curved, without knobs or spines. First genital segment slightly longer than last abdominal tergite (0.20:0.16), ventrally not modified, without spinose process, posterior margin of first genital segment dorsally hardly notched. Parameres similar those of *H. platensis* (figs. 2, 3).

Female. Fore femur slightly curved, somewhat more slender than in male. Middle tibia in some specimens very slightly shorter than body length. Connexiva horizontal to slanting upward, in one specimen nearly verti-

cally halfway but not reflexed and without a patch of hairs on segment 5.

Macropterous form not known.

### Habitat

The specimens were collected on a quiet edge in the shade of a tree in a 30-50 m wide river with moderate current, except for riffles at shallow places in the centre, bottom stones, pebbles, sand and quite a lot of silt, depth mostly 0.5-0.7 m.

### Etymology

*Chrysocastanis* is a Greek adjective meaning golden brown, referring to the overall body colour of the species.

### Comparative notes

The colour pattern of the apterous form is totally different from other species of *Halobatopsis* (fig. 4-5). In shape *H. chrysocastanis* is similar to *H. platensis* which on average is slightly larger, but confidence intervals of various measurements based on small samples (4

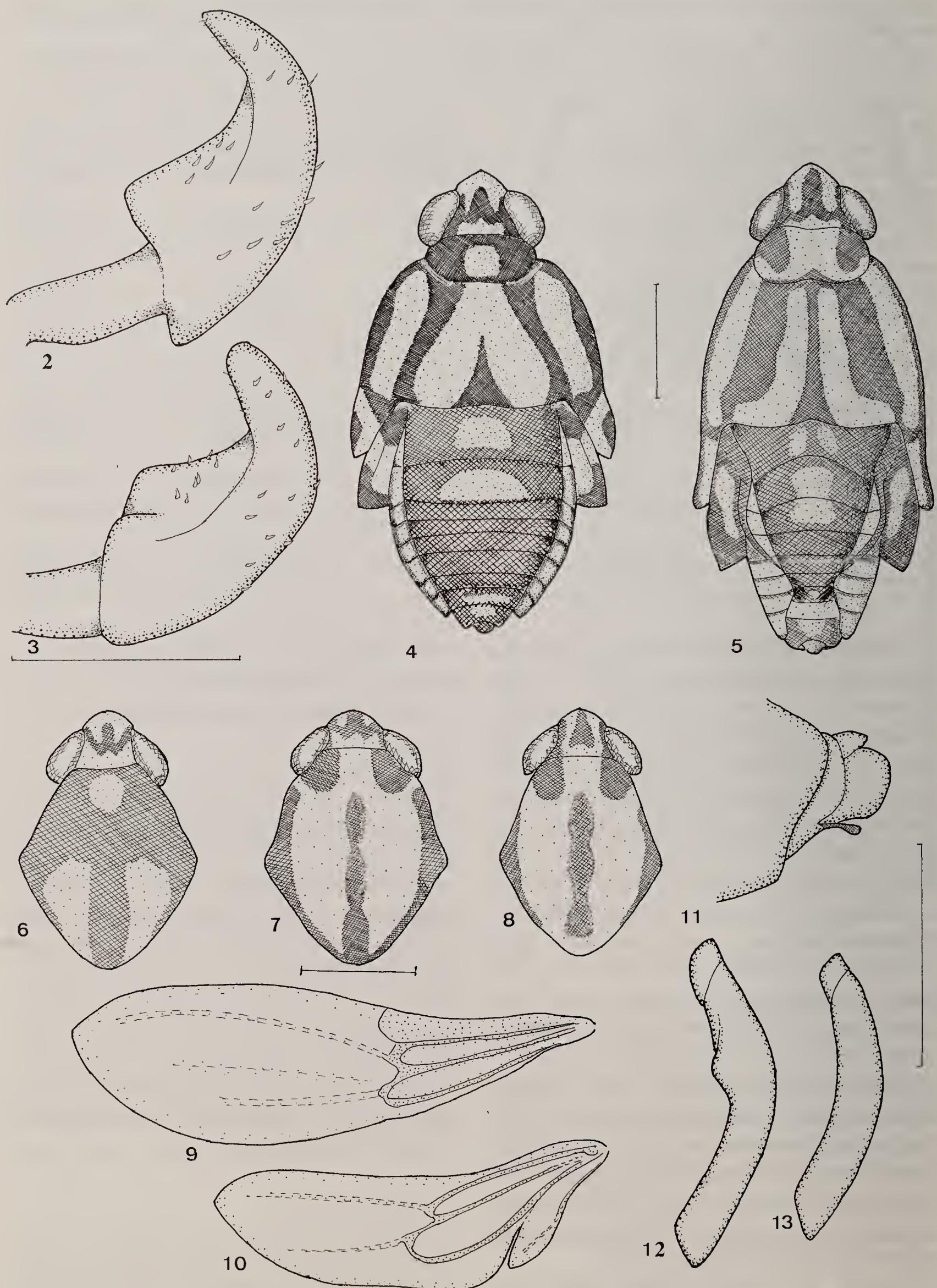


Fig. 2-13. *Halobatopsis*. 2, *H. chrysocastanis*; 3-4, 6, *H. platensis*; 5, 7, 9-12, *H. delectus*; 8, 13, *H. spiniventris*; 2-3, parameres; 4-5, body shape and colour pattern of females; 6-8, head and pronotum of macropters; 9, fore wing; 10, hind wing; 11, male, apex of abdomen in lateral view; 12-13, femur and trochanter of males. Scale lines: 0.1 mm (fig. 2-3); 1 mm (fig. 4-13).

or 5 specimens) of *H. chrysocastanis* and *H. platensis* show considerable overlap. As an example, the 0.95 confidence intervals for the mean of the body length are: *H. chrysocastanis* ♂: 3.31-3.57, ♀: 3.97-4.17 and *H. platensis* ♂: 3.40-3.68, ♀: 4.06-4.24. However, in *H. chrysocastanis* the hind tibia is about twice the length of the tarsus and in *H. platensis* this ratio is about 2.5 (table 2). The colour pattern is similar to that of *Cryptobatoides brunneus* Polhemus from Amazonas and two species of the Asian genus *Cryptobates* Esaki. *Cryptobatoides brunneus* is smaller, length ♂ 2.6-3.0, ♀ 2.9-3.2, has a more elongate body shape and eyes (in dorsal view), the paramere is elongate and the male has a characteristic oval brown spot on the mesothoracic pleura.

### ***Halobatopsis delectus* Drake & Harris**

#### *Material examined*

Brazil, Minas Gerais, Nova Lima, Águas Claras, Ribeirão Marumbé, 25.xi.1992, leg. N. Nieser, 4♂, 1♀ apt.; Serra da Canastra, Rio S. Francisco at park station "Pé Cascada, Casca d'Anta", 6.xi.1997, leg. N. Nieser, 7♂, 8♀ apt., 1♀ deal.; Serra da Canastra, São João Batista, Rio Aguari, in pond at base of waterfall, 11.xi.1997, leg. N. Nieser & A. Pelli, 11♂, 18♀ apt., 6♂, 9♀ deal., 1♀, macr.; Rio do Peixe in S. Roque de Minas, 20°14'35"S/ 46°22'13"W, 7.xi.1997, leg. N. Nieser & A. Pelli, 5♂, 2♀ apt., 2♂, 2♀ deal.; Serra da Canastra, pond at base of Cachoeira R. do Peixe, 20°15'12"S/46°24'24"W, 12.xi.1997, leg. N. Nieser, 9♂, 5♀ apt., 2♂, 3♀ macr.

#### *Macropterous form*

Pronotum light to medium brown with anterolateral, lateral and median dark brown to blackish markings (fig. 7). Wings (fig. 9, 10) very similar to those of *Trepobates*, apparently the anal lobe of hind wing is somewhat smaller in *Halobatopsis* (compare Andersen 1982: 215, fig. 428, 429). Nearly all macropterous specimens found in the field are dealate with the part apically of the closed cells torn off. The few with complete wings we collected are more or less teneral.

#### *Distribution*

So far only known from the southern part of Minas Gerais (fig. 14), where it is quite common on quiet stretches at lower altitudes of mountain streams (Drake & Harris, 1941; Nieser & Lane de Melo, 1997). Quite often it was found together with *H. platensis*. Interesting is the situation around Serra da Canastra where it was found on various streams at the foot of the table mountain but not on the plateau (Nieser, personal observation).

### ***Halobatopsis platensis* (Berg)**

#### *Material examined*

Brazil, Minas Gerais, Serra de Cipó, córrego do Palacio, 5.xii.1992, leg. N. Nieser & A. Lane de Melo, 17♂, 14♀ apt.; Rio do Peixe in S. Roque de Minas, 20°14'35"S/ 46°22'13"W, 7.xi.1997, leg. N. Nieser & A. Pelli, 1♀ apt., 2♂ deal.; Serra da Canastra, source area Rio S. Francisco, pothole at bridge, 4.xi.1997, leg. A. Pelli, 15♂, 17♀, 35 lv I-V apt., 1♂, 2♀ deal.; Serra da Canastra, Rio S. Francisco on top of Cascada Casca d'Anta, N9717, 5.xi.1997, leg. N. Nieser & A. Pelli, 1♂, 9♀ apt., 1♂, 1♀ macr., 6 lv V.; Serra da Canastra, Cachoeira do Rolino, on top of waterfall, 8.xi.1997, leg. N. Nieser & A. Pelli, 1♂, 11♀, 6 lv V apt., 1♀ deal., 2♂, 5♀, 6 lv V macr.; Serra da Canastra, Córrego da Parida, 11.xi.1997, leg. A. Pelli, numerous adults and larvae, ca. 0.4 of both adults and larvae V macr., many macr. adults not yet dealate.

#### *Macropterous form*

Pronotum largely dark brown to black with anteromedian and caudalateral medium brown markings (fig. 6).

#### *Distribution*

*Halobatopsis platensis* is distributed from Argentina to the southern part of Brazil, apparently entering only marginally the Pantanal and not entering the Amazon Basin (fig. 14) (Bachmann, 1966; Nieser, 1970; Nieser & Lane de Melo, 1997).



Fig. 14. Distribution of *Halobatopsis* species. Solid line: *H. platensis*; white star: *H. chrysocastanis*; solid dots: *H. delectus*; asterisk: *H. spiniventris*.

### ***Halobatopsis spiniventris* Drake & Harris**

#### *Material examined*

Brazil, Santa Catarina, Nova Teutonia, 27°11'S/52°23'W, iv.1975, leg. F. Plaumann, 2♂, 2♀ apt., 1♂ deal. (NCTN).

#### *Macropterous form*

Pronotum light to medium brown with anterolateral, lateral and median dark brown to blackish markings, very similar to *H. delectus* (fig. 8).

#### *Distribution*

*Halobatopsis spiniventris* is known from Argentina: Misiones and Brazil: São Paulo and Santa Catarina (fig. 14) (Bachmann, 1966, Drake & Harris, 1936). So far the records of *H. spiniventris* are within the basin of Rio Paraná whereas those of *H. delectus* and *H. chrysocastanis* are in the basin of Rio S. Francisco.

#### *Key to apterous Halobatopsis*

- 1 Mesonotum without longitudinal black marks (fig. 1) ..... *H. chrysocastanis*
- Mesonotum with longitudinal black marks

- (fig. 4, 5) ..... 2
- 2 Male first genital segment with a dark brown to blackish ventral spine (fig. 11). Female with connexiva vertical or reflexed over abdomen (fig. 5) ..... 3
- Male first genital segment without ventral spine. Female with connexiva horizontal or only slightly slanting upward (fig. 4) ..... *H. platensis*
- 3 Male fore femur with a tubercle at basal fourth (fig. 12) ..... *H. delectus*
- Male fore femur without tubercle at basal fourth (fig. 13) ..... *H. spiniventris*

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