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New species of *Tropicus* Pacheco, 1964 from Paraguay and Ecuador (Coleoptera, Heteroceridae)

by Stanislav Skalický

Abstract. A new species of *Tropicus* Pacheco, 1964, *T. cordilleraensis* sp.nov. from Paraguay and Ecuador, is described, illustrated and compared with similar species. A list of known species of *Tropicus* is included, together with their distribution

Key words. Coleoptera – Heteroceridae – *Tropicus* – taxonomy – new species – Paraguay – Ecuador

Introduction

The current contribution follows upon recently published papers (SKALICKÝ 2002, 2004) based on the examination of 3953 specimens of Heteroceridae collected by Dr. Drechsel in Paraguay and deposited in Naturhistorisches Museum Wien, Austria and in the author's collection. The next part of this collection, including 3435 specimens from 11 departments of Paraguay, has recently been studied. The collection contains only 4 species of *Heterocerus* Fabricius 1792 and 5 species of *Tropicus* Pacheco, 1964. One of them, *T. cordilleraensis* sp.nov., is new to science. In addition, this new species has also been determined in the collections of the Natural History Museum, London (collected in Ecuador). The new species is described below. Faunal data on other collected species are also given.

Species of *Heteroceridae* with 9-segmented antennae are currently known in three genera. One occurs in *Heterocerus* (*H. ottomerkli* Skalický, 2001 from Tunis), two in *Micilus* Mulsat et Rey 1872 (*M. minutissimus* Sahlberg, 1990 and *M. murinus*, Kiesenwetter, 1843 from Europe and Asia) and the 51 species in *Tropicus* Pacheco, 1964 are distributed in the New World. When erected, the genus *Tropicus* was subdivided into three groups (*Pusillus*, *Imperator* and *Minutus*), based largely on the structures of the spiculum gastrale and aedeagus. They are easily distinguishable from the members of other genera by the presence of a well-developed process on the dorsal ridge of the mandibles in male specimens (PACHECO 1964). *T. cordilleraensis* sp.nov. is an exception in that the dorsal ridge of the mandibles is developed as only a simple, short spine. This feature is also known in *T. goiasensis* Skalický, 2006 from Brazil (SKALICKÝ 2006a).

The taxonomy of the genus *Tropicus* is developing rapidly. Twelve species were originally described by PACHECO (1964). About 30 years later, BAMEUL (1995) listed 27 species. I now submit a modified checklist of *Tropicus* containing the 51 known species, together with their distribution.

Material

The following abbreviations are used in the text to indicate the depositories of the material examined:

CSU	The S. Skalický Collection, Ústí nad Orlicí, Czech Republic
NHMB	The Natural History Museum, Basel, Switzerland
NMW	Naturhistorisches Museum Wien, Austria
BMNH	The Natural History Museum, London, England

Description of new species

Tropicus cordilleraensis sp.nov.

(Figs 1–5)

Type locality. Paraguay, Department Cordillera, San Bernardino.

Type material. Holotype ♂: “PARAGUAY Dep. Cordillera San Bernardino 24–VIII–[19]98 Drechsel leg.” (NMW). Paratype (Allotype) ♀: the same data as holotype (NMW). Paratypes: 83 (23 ♂♂, 60 ♀♀) specimens, the same data as holotype (NMW, 3 ♂♂, 6 ♀♀ CSU, 1 ♂ NHMB); 6 (2 ♂♂, 4 ♀♀) specimens: “Ecuador; Napo reg., Tiputini Res. Stat., 220m, 5–25.ix.00 0°38’S : 76°9’W // Flight Intercept Trap D.J.Inward & A.Jackson BMNH{E} 2000-194” (BMNH, 1 ♂, 4 ♀♀ CSU, 1 ♂).

Description. Holotype ♂: Total length 2.25 mm (to apex of labrum); elytra 1.45 mm long, 0.85 mm wide across shoulders.

Body uniformly ochreous, elytron with darker, diffuse spots situated as in Fig. 1.

Labrum (Fig. 2) rounded, anterior apex serrate, with short, dense setae. Mandibles (Fig. 3) bluntly dentate, dorsal subapical tooth almost imperceptible, rounded, without process on dorsal ridge. Prosthema without prosthecal notch, with series of teeth. Clypeus without pair of anterior horns, anterior margin shallowly emarginate; coarsely granular, setae long, erect. Head finely granular without long setae above eyes. Antennae 9-segmented, with 6-segmented club. Antennomeres 1 and 2 with long, erect setae.

Pronotum 1.60 times wider than long, as wide as base of elytra; pronotal base completely rimmed. Surface of pronotum finely granular without larger punctures, punctures approximately 0.5 diameter of eye facets; setae short, sparse, adjacent, without longer setae. Scutellum triangular, anterior angles rounded. Elytra without longitudinal furrows, without scutellar depressions, humeral depressions shallow, short; surface finely granular, punctures approximately as large as eye facets. Epipleural ridge absent. Metasternum without post-mesocoxal ridge. Mesosternum neither spinose nor tuberculate in front of each mesocoxa.

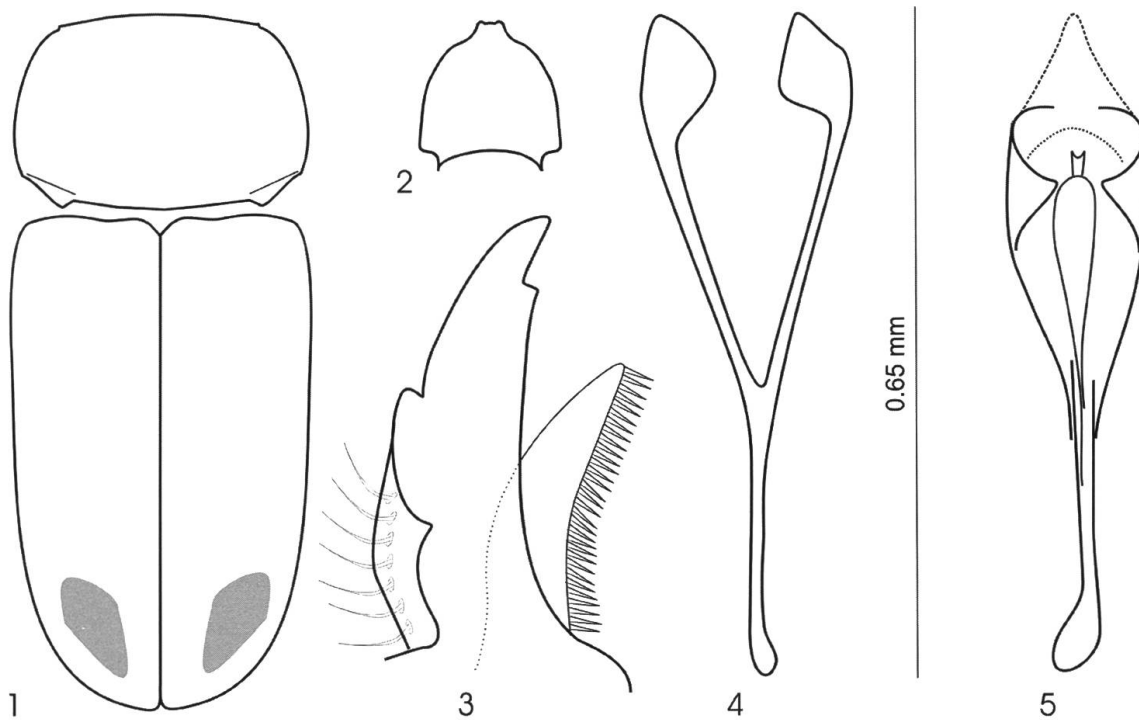
Post-metacoxal line absent. Stridulatory arch marked with striae. Protibia with 10 stout spines, meso- and metatibia with uncertain number of thin spines.

Spiculum gastrale 0.65 mm long; Y-shaped, as in Fig. 4. Aedeagus 0.65 mm long, shape as in Fig. 5.

Paratype (Allotype) ♀: Total length 2.25 mm (to apex of labrum); elytra 1.40 mm long, 0.85 mm wide across shoulders. Externally similar to male.

Derivatio nominis. The new species is named after its place of origin, Cordillera province in Paraguay.

Differential diagnosis. Judging by the shape of the aedeagus and spiculum gastrale, *T. cordilleraensis* sp.nov. belongs to the *T. imperator* group *sensu* PACHECO (1964).



Figs 1–5. *Tropicus cordilleraensis* sp.nov., holotype: 1, pronotum and elytra, dorsal view; 2, labrum, dorsal view; 3, apical part of right mandible with prostheca, dorsal view; 4, spiculum gastrale, dorsal view; 5, aedeagus, dorsal view. Figs 1–3 are not to scale.

The mandibles lack a process on the dorsal ridge in both *T. cordilleraensis* sp.nov. and *T. imperator*. The aedeagus and spiculum gastrale in *T. cordilleraensis* are similar to those of *T. goiasensis* Skalický, 2006 from Brazil (Goias state). *T. cordilleraensis* differs from the latter in the shape of clypeus, elytral pattern and in the structure of the male genitalia (Compare Figs 17–21 in SKALICKÝ 2006a and Figs 1–5 in this paper).

Distribution notes on some Paraguayan Heteroceridae

[Unless otherwise stated, all specimens listed below are deposited in NMW.]

Heterocerus ciliaticollis Steinheil, 1869

Material examined. 11 exx undetected sex: “PARAGUAY: Dep. Caaguazu [Caaguayu] Tayao 14 Feb. 2001 leg. U. Drechsel”; 1 ex. undetected sex : “PARAGUAY: Dep. Pte. Hayes Transchaco Hwy. km 220 Rio Montelirido 22.8.1995 leg. Drechsel”; 3 exx undetected sex: “PARAGUAY: Dep. Pte. Hayes Escalante 7.10.1995 leg. Drechsel”; 130 exx (31 ♂♂, 18 ♀♀, 81 exx undetected sex; 5 ♂♂ CSU): “PARAGUAY: Dep. Pte. Hayes Puento Gallieo S 25°04' W 57° 52' 01.–03.xi.2005 leg. U. Drechsel”.

Distribution. Argentina, Brazil, Paraguay (PACHECO 1964, SKALICKÝ 2002).

***Heterocerus drechseli* Skalický, 2002**

Material examined. 48 exx undetected sex: "PARAGUAY Dep. Boqueron Mistolar 3–12–X 97 Drechsel leg".

Distribution. Paraguay (SKALICKÝ 2002).

***Heterocerus pachecoi* Skalický, 2002**

Material examined. 7 exx (2 ♂♂, 5 ♀♀): "PARAGUAY Dep. Boqueron Mistolar 3–12–X 97 Drechsel leg".

Distribution. Paraguay (SKALICKÝ 2002).

***Heterocerus similis* Grouvelle, 1892**

Material examined. 12 exx (5 ♂♂, 7 ♀♀): "PARAGUAY: Dep. Alto Parana Estacia Dimas S 25°32.8' W 55° 13.4' 17.–22.ii.2005 leg. U. Drechsel"; 278 exx (38 ♂♂, 40 ♀♀, 200 exx undetected sex): "PARAGUAY Dep. Boqueron Mistolar 3–12–X 97 Drechsel Leg."; 104 exx (10 ♂♂, 5 ♀♀, 89 exx undetected sex, therefrom 5 ♂♂ CSU): "PARAGUAY: Dep. Pte. Hayes Puento Gallieo S 25°04' W 57° 52' 01.–03.xi.2005 leg. U. Drechsel".

Distribution. Argentina, Brazil, Chile, Paraguay, Uruguay (PACHECO 1964, SKALICKÝ 2002).

***Tropicus alcornis* Mascagni, 1989**

Material examined. 2 exx (♀♀): "PARAGUAY: Dep. Alto Paraguay 90km NW Bahia Negra 25.7.1996 lgt. Drechsel"; 5 exx (♀♀): "PARAGUAY: Dep. Alto Paraguay Cerro Leon 27.9.1996 lgt. Drechsel"; 4 exx (1 ♂, 2 ♀♀, 1 ex. undescribed sex): "PARAGUAY: Dep. Alto Paraguay 40km S Cerro Chovoraka 27.7.1995 lgt. Drechsel"; 104 exx (2 ♂♂, 2 ♀♀, 100 exx undescribed sex): "PARAGUAY: Dep. Alto Parana Estacia Dimas S 25°32.8' W 55° 13.4' 24.–25.xi.2004 leg. U. Drechsel"; 81 exx (17 ♂♂, 14 ♀♀, 50 exx undescribed sex): "PARAGUAY: Dep. Alto Parana Estacia Dimas S 25°32.8' W 55° 13.4' 17.–22.ii.2005 leg. U. Drechsel"; 2 exx (♀♀): "PARAGUAY: Dep. Alto Parana Estacia Dimas S 25°33' W 55° 13' 1.–3.vii.2005 leg. U. Drechsel"; 1 ex. (♀): "PARAGUAY: Dep. Alto Parana Habo S 24°57' W 54° 31' 3.–7.x.2005 leg. U. Drechsel"; 4 exx (1 ♂, 3 ♀♀): "PARAGUAY: Dep. Boqueron M. Estigarribia 24.2.1992 leg. U. Drechsel"; 6 exx (3 ♂♂, 3 ♀♀): "PARAGUAY Dep. Boqueron Mistolar 3–12–X 97 Drechsel Leg."; 4 exx (1 ♂, 3 ♀♀): "PARAGUAY: Dep. Caaguazu Tayao 14 Feb. 2001 leg. U. Drechsel"; 4 exx (1 ♀, 3 exx undescribed sex): "PARAGUAY: Dep. Canindeyu [u] Maracana 24.–30.1.1995 Leg. Drechsel"; 25 exx (4 ♂♂, 21 ♀♀): "PARAGUAY: Dep. Canindeyu [Canindeyu] Ref. Biol. Carapa 14–VIII–00 leg. U. Drechsel"; 1 spec (♀): "PARAGUAY: Dep. Cordillera Altos 12.VI.1994 leg. U. Drechsel"; 22 exx (9 ♂♂, 9 ♀♀, 4 exx undescribed sex): "PARAGUAY Dep. Cordillera San Bernardino 23–VIII–98 Drechsel Leg." ; 3 exx (undescribed sex): "PARAGUAY: Dep. Guaira Calle Florida 26.8.1993 leg. U. Drechsel"; 1 spec (♀): "PARAGUAY: Dep. Guaira Calle Florida 27.8.1994 leg. U. Drechsel"; 1 ex. (♀): "PARAGUAY: Dep. Paraguari Sapucay 4.–8.2.1995 leg. Drechsel"; 650 exx (117 ♂♂, 184 ♀♀, 349 exx undescribed sex): "PARAGUAY: Dep. Pte. Hayes Puento Gallieo S 25°04' W 57° 52' 01.–03.xi.2005 leg. U. Drechsel"; 1 ex. (undescribed sex): "PARAGUAY: Dep. Pte. Hayes Transcheco Hwy. km 283 Estancia San Isidro 23.8.1995 leg. Drechsel"; 19 exx (3 ♂♂, 14 ♀♀, 2 exx undescribed sex): "PARAGUAY: Dep. Pte. Hayes Est. Vaca Reta 7.2.1996 leg. Drechsel"; 14 exx (5 ♂♂, 7 ♀♀, 1 ex. undescribed sex): "PARAGUAY: Dep. San Pedro Nueva Germania 19.–22.11.1991 leg. Drechsel"; 5 exx (♀, 4 exx undescribed sex): "PARAGUAY: Dep. San Pedro Vacajhu 5.–8.3.1993 leg. Drechsel"; 8 exx (2 ♂♂, 6 ♀♀): "PARAGUAY: Dep. Central Avegme 14.xi.99 leg. U. Drechsel".

Distribution. Bolivia, Paraguay, Venezuela (BAUMEL 1995, MASCAGNI 1989, SKALICKÝ 2006b).

***Tropicus bartolozzii* Mascagni, 1994**

Material examined. 206 exx (14 ♂♂, 11 ♀♀, 181 exx undescribed sex, from them 20 exx CSU): “PARAGUAY Dep. Boqueron Mistolar 3–12–X 97 Drechsel leg.”; 30 exx (9 ♂♂, 21 ♀♀, from them 2 ♂♂, 3 ♀♀ CSU): “PARAGUAY: 24.–30.1.1995 Dep. Canindey Maracana Leg. Drechsel.”

Distribution. Ecuador, Paraguay (MASCAGNI 1994, SKALICKÝ 2002).

***Tropicus boukali* Skalický, 2002**

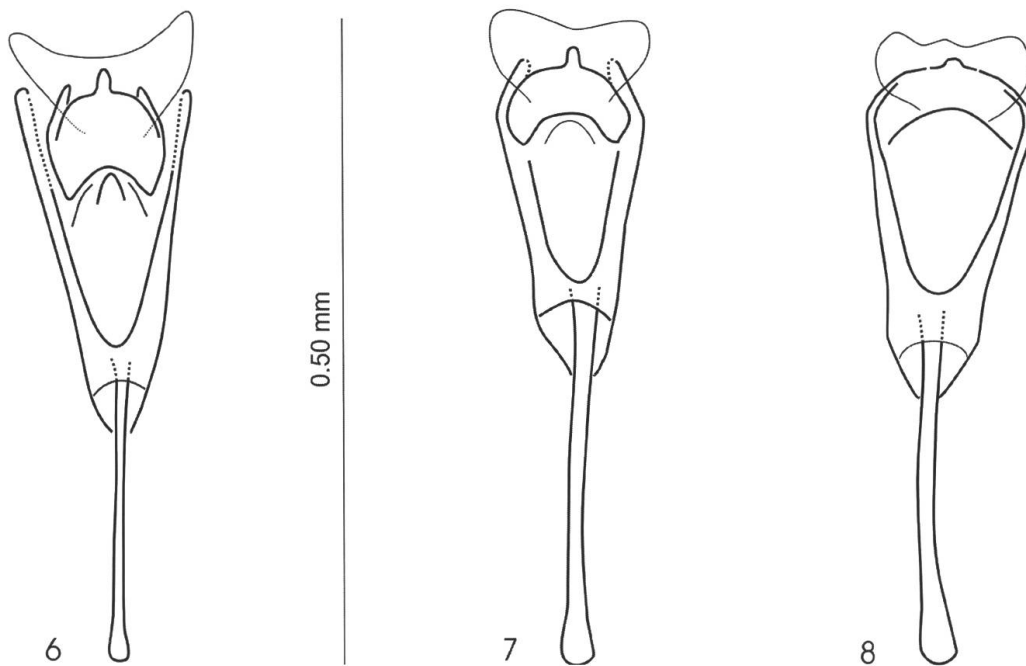
(Figs 6–9)

Material examined. 1 ex. (♀): “PARAGUAY: Dep. Alto Paraguay 90km NW Bahia Negra 30.7.1995 lgt. Drechsel”; 49 exx (18 ♂♂, 29 ♀♀, 2 exx undescribed sex): “PARAGUAY: Dep. Alto Paraguay 90km NW Bahia Negra 25.7.1996 lgt. Drechsel”; 83 exx (6 ♂♂, 12 ♀♀, 65 exx undescribed sex): “PARAGUAY: Dep. Alto Paraguay Paragro 22 21K 0327261 UTM 7570948 08.–10.iv.2004 leg. U. Drechsel”; 1 ex. (♂): “PARAGUAY: Dep. Alto Paraguay Cerro Leon 27.9.1996 lgt. Drechsel”; 8 exx (2 ♂♂, 6 ♀♀): “PARAGUAY: Dep. Alto Paraguay 40km S Cerro Chovoraka 27.7.1995 lgt. Drechsel”; 55 exx (17 ♂♂, 32 ♀♀, 6 exx undescribed sex): “PARAGUAY: Dep. Boqueron M. Estigarribia 24.2.1992 leg. U. Drechsel”; 5 exx (2 ♂♂, 3 ♀♀): “PARAGUAY: Dep. Boqueron Transchaco Hwy. km 430 19.–28.4.1995 leg. Drechsel”; 5 exx (2 ♀♀, 3 exx undescribed sex): “PARAGUAY: Dep. Boqueron M. Estigarribia 5.–9.5.1992 leg. Drechsel 1992”; 109 exx (20 ♂♂, 19 ♀♀, 70 exx undescribed sex): “PARAGUAY Dep. Boqueron Mistolar 3–12–X 97 Drechsel Leg.”; 17 exx (♀♀): “PARAGUAY: Dep. Guaira Calle Florida 5.8.1993 leg. U. Drechsel”; 3 exx (undescribed sex): “PARAGUAY: Dep. Guaira Calle Florida 27.8.1994 leg. U. Drechsel”; 3 exx (undescribed sex): “PARAGUAY: Dep. Guaira Calle Florida 9.10.1993 leg. U. Drechsel”; 1 ex. (♂): “PARAGUAY: Dep. Guaira Calle Florida 9.9.1994 leg. U. Drechsel”; 30 exx (4 ♂♂, 15 ♀♀, 11 exx undescribed sex): “PARAGUAY: Dep. Guaira Calle Florida 26.8.1993 leg. U. Drechsel”; 24 exx (6 ♂♂, 15 ♀♀, 3 exx undescribed sex): “PARAGUAY: Dep. Pte. Hayes Transcheco Hwy. km 283 Estancia San Isidro 23.8.1995 leg. Drechsler”; 5 exx (2 ♂♂, 2 ♀♀, 1 ex. undescribed sex): “PARAGUAY: Dep. Pte. Hayes Transchaco Hwy. km 340 Rio Sombreo-Piri 24.8.1995 leg. Drechsel”; 977 exx (133 ♂♂, 251 ♀♀, 593 exx undescribed sex, from them 200 exx CSU): “PARAGUAY: Dep. Pte. Hayes Puento Gallio S 25°04′ W 57° 52′ 01.–03.xi.2005 leg. U. Drechsel”; 2 exx (undescribed sex): “PARAGUAY: Dep. Pte. Hayes Escalante 7.10.1995 leg. Drechsel”; 9 exx (♂, 7 ♀♀, 1 ex. undescribed sex): “PARAGUAY: Dep. Pte. Hayes Est. Vaca Reta 7.2.1996 leg. Drechsel”; 162 exx (47 ♂♂, 66 ♀♀, 49 exx undescribed sex): “PARAGUAY: Dep. San Pedro Nueva Germania 19.–22.11.1991 leg. Drechsel”; 5 exx (♀♀): “PARAGUAY: leg. Drechsel”.

Distribution. Paraguay (SKALICKÝ 2002).

Remarks. *T. boukali* was sorted and labelled as new (“*T. madalium*”), but remained unpublished by Dr. Miller. In the original description (SKALICKÝ 2002), 72 specimens of this species were recorded from one Paraguay department (Boqueron). SKALICKÝ (2004) recorded 3586 specimens from two departments (Alto Paraguay and Boqueron). A further 1554 specimens of this species from five Paraguay departments are recorded in the present paper, among which Guaira, Presidente Hayes and San Pedro are new. *T. boukali* is now known from 15 localities and further records may be expected (the darker area in Fig. 9 marks the distribution of *T. boukali* in Paraguay departments).

During the study of the large series (5212 specimens) of *T. boukali*, I observed a partial modification of the aedeagus. Compare Fig. 6 (original drawing, SKALICKÝ 2002) and Figs 7–8 (modified aedeagus observed). The spiculum gastrale is uniform in all specimens. Other variation as in the original description. The most frequent elytral pattern observed is as Fig. 21 in SKALICKÝ (2002) (similar to *T. tuberculatus* Pacheco, 1964).



Figs 6–8. *T. boukali*, aedeagus: 6, holotype, dorsal view; 7–8, samples of differently shaped aedeagi, dorsal view.

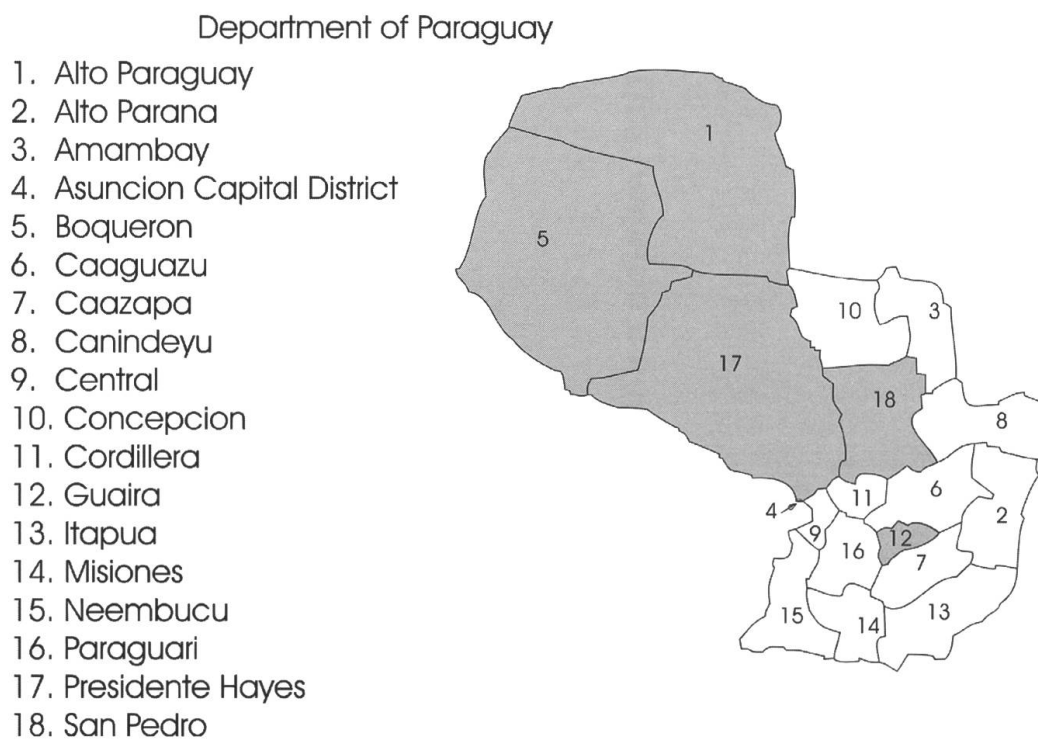


Fig. 9. Known distribution (darker area) of *T. boukali* Skalický, 2002 in Paraguay departments.

Checklist of the genus *Tropicus* Pacheco, 1964

<i>T. alcicornis</i> Mascagni, 1989	Bolivia, Paraguay, Venezuela
<i>T. alpacinchensis</i> Skalický, 2002	Argentina
<i>T. aratus</i> Miller, 1992	Brazil
<i>T. arawak</i> Bameul, 1995	Guadeloupe
<i>T. balli</i> Skalický, 2006	Mexico
<i>T. bartolozzii</i> Mascagni, 1994	Ecuador, Paraguay
<i>T. belizensis</i> Skalický, 2006	Belize
<i>T. bertiae</i> Skalický, 2006	Bolivia
<i>T. bilineatus</i> (Chevrolet, 1864)	Costa Rica, Cuba
<i>T. boqueronsis</i> Skalický, 2002	Paraguay
<i>T. borysi</i> Skalický, 2006	Brazil
<i>T. boukali</i> Skalický, 2002	Paraguay
<i>T. braza</i> Miller, 1992	Brazil
<i>T. braziliensis</i> Skalický, 2006	Brazil
<i>T. carus</i> Pacheco, 1964	Brazil
<i>T. cordilleraensis</i> sp.nov.	Paraguay, Ecuador
<i>T. davidsoni</i> Mascagni, 1993	Brazil
<i>T. debilis</i> (Sharp, 1882)	Guatemala
<i>T. deuvei</i> Skalický, 2006	Bolivia
<i>T. excellens</i> Miller, 1992	Surinam
<i>T. goiasensis</i> Skalický, 2006	Brazil
<i>T. guanarensis</i> Skalický, 2006	Venezuela
<i>T. hanae</i> Skalický, 2002	Paraguay
<i>T. hevolorum</i> Skalický, 2007	Mexico
<i>T. huachiensis</i> Skalický, 2006	Bolivia
<i>T. imperator</i> Pacheco, 1964	Argentina, Bolivia, Brazil, Paraguay
<i>T. infidus</i> Miller, 1992	Brazil
<i>T. insidiosus</i> (Grouvelle, 1896)	Brazil
<i>T. ladonnae</i> Ive (Stribling, 1984)	Trinidad
<i>T. lituratus</i> (Kiesenwetter, 1843)	Dominican Rep., Puerto Rico, Trinidad, Venezuela
<i>T. miguei</i> Skalický, 2004	Paraguay
<i>T. milleri</i> Mascagni, 1993	Paraguay
<i>T. minutus</i> (Fall, 1920)	Texas
<i>T. niger</i> Skalický, 2007	Mississippi
<i>T. paraguayensis</i> Skalický, 2002	Paraguay
<i>T. plaumanni</i> Pacheco, 1964	Brazil
<i>T. pusillus</i> (Say, 1823)	northern US to Panama
<i>T. riosensis</i> Skalický, 2007	Ecuador
<i>T. sagittarius</i> Pacheco, 1964	Brazil
<i>T. sanisidroensis</i> Skalický, 2002	Paraguay
<i>T. spangleri</i> Skalický, 2007	Costa Rica, Panama, Honduras
<i>T. sparus</i> Miller, 1992	Brazil

<i>T. speciosa</i> Miller, 1992	Brazil
<i>T. squamosus</i> Pacheco, 1964	Argentina, Bolivia
<i>T. taghavianii</i> Skalický, 2006	Bolivia
<i>T. triangulus</i> Skalický, 2002	Paraguay
<i>T. trifidus</i> Skalický, 2007	Ecuador, Peru
<i>T. trinidadensis</i> Pacheco, 1964	Trinidad
<i>T. tuberculatus</i> Pacheco, 1964	Brazil
<i>T. tucumanensis</i> Pacheco, 1964	Argentina
<i>T. vicinus</i> Miller, 1992	Brazil

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