

AMERICAN MUSEUM *Novitates*

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK, N.Y. 10024
Number 3153, 8 pp., 17 figures
November 17, 1995

On a New Brazilian Spider of the Genus *Trachelopachys* (Araneae, Corinnidae), with Notes on Misplaced Taxa

NORMAN I. PLATNICK¹ AND CARLOS F. D. ROCHA²

ABSTRACT

A new species, *Trachelopachys ammobates*, is described from southeastern Brazil; these spiders are diurnally active on coastal sand dunes, despite the high temperature regimes of that habitat, and are conspicuously (perhaps aposematically) colored. Two other species, *Cetonana quadriocellata*

(Mello-Leitão), described from Paraguay, and *Trachelas caviunae* Mello-Leitão, described from Brazil, are transferred to *Trachelopachys*. The former species is newly recorded from Argentina and Bolivia; the male of the latter species is described for the first time.

INTRODUCTION

The tracheline spider genus *Trachelopachys* Simon was revised by Platnick (1975), who recognized 12 species, belonging to two species groups and occurring from northern Colombia south to southern Argentina; additional information on three species that occur in southern South America was provided by Platnick and Ewing (1995). We describe

here a new species, *T. ammobates*, that occurs on coastal sand dunes in southeastern Brazil, where their typically striking coloration (fig. 1) and their diurnal activity pattern make them a conspicuous part of the biota.

In addition to presenting natural history data on the new species, we illustrate and redescribe two other tracheline species, orig-

¹ Curator, Department of Entomology, American Museum of Natural History; Adjunct Professor, Department of Biology, City College, City University of New York; Adjunct Professor, Department of Entomology, Cornell University.

² Setor de Ecologia, Instituto de Biologia, Universidade do Estado do Rio de Janeiro, Rua São Francisco Xavier 524, Maracanã, RJ, 20559-900 Brazil.

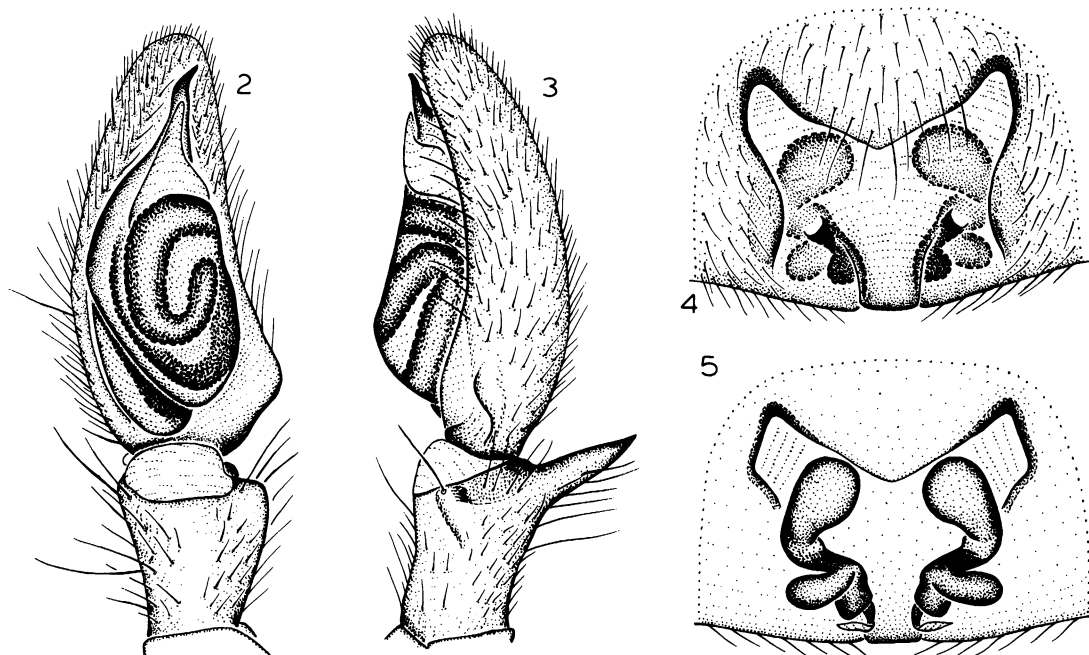


Fig. 1. *Trachelopachys ammobates*, new species, female. Photograph by Antonio Batalha.

inally described in other genera, that are misplaced members of *Trachelopachys*.

We thank M. U. Shadab of the American Museum of Natural History (AMNH) for help with illustrations, A. Timotheo da Costa and L. N. Garcia-Neto of the Museu Nacional, Rio de Janeiro (MNRJ) and A. Hänggi of the Naturhistorisches Museum, Basel (NMB), for lending types, E. H. Buckup of the Museu de Ciências Naturais, Porto Alegre (MCN) for lending other material, D. Vrcibradic and P. F. Teixeira-Filho for assistance in the field, and H. Bergallo, A. Bonaldo, A. Brescovit, M. Ramírez, and M. Van Sluys for helpful reviews of various drafts of the manuscript. We especially appreciate the new records of material from the collection of the Museo

Argentino de Ciencias Naturales, Buenos Aires (MACN) that were kindly supplied by (and are incorporated here thanks to the generosity of) M. Ramírez, and the relevant specimens made available to us from the collections of the Museum of Comparative Zoology, Harvard University (MCZ) and the Universidade Julio Mesquita Filho (UESP) by A. Bonaldo, who had borrowed them from those institutions and who determined that they belonged to the species examined here. This study was partially supported by a grant to the second author from the Conselho Nacional do Desenvolvimento Científico e Tecnológico- CNPq (No. 840 240 89-9). The format of the descriptions follows that of the revision; all measurements are in millimeters.



Figs. 2–5. *Trachelopachys ammobates*, new species. 2. Left male palp, ventral view. 3. Same, retrolateral view. 4. Epigynum, ventral view. 5. Same, dorsal view.

SYSTEMATICS

Trachelopachys ammobates, new species Figures 1–5

TYPES: Holotype male and allotype female from the restinga at Barra de Maricá, 22°57'S, 43°50'W, 38 km E Rio de Janeiro, Rio de Janeiro, Brazil (May 18, 1991; C. F. D. Rocha), deposited in MNRJ.

ETYMOLOGY: The specific name is from the Greek *ammobates* (sand-walker), referring to the habits of the species.

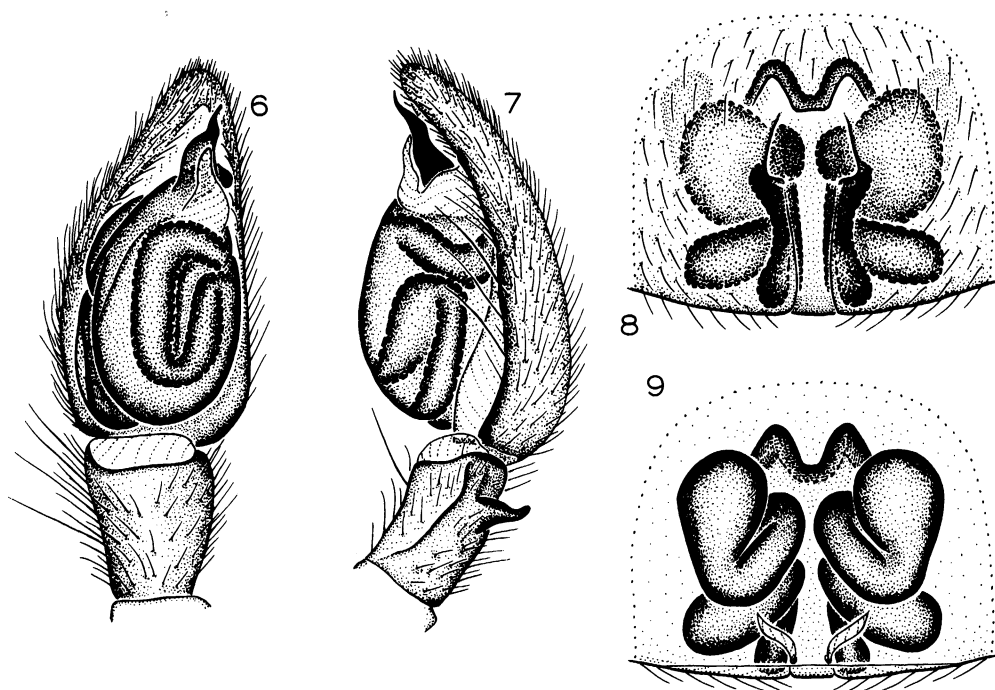
DIAGNOSIS: This species is a member of the *sericeus* group, and resembles *T. cingulipes* (Simon) in having a greatly elongated retrolateral tibial apophysis on the male palp. Males can be distinguished from those of *T. cingulipes* by the simple, rather than bifid, embolus (figs. 2, 3), females by the longer lateral epigynal margins (figs. 4, 5).

MALE: Total length 6.47. Carapace 3.42 long, 2.80 wide. Femur II 2.80 long. Eye sizes and interdistances: AME 0.12, ALE 0.11,

PME 0.12, PLE 0.13; AME-AME 0.12, AME-ALE 0.10, PME-PME 0.22, PME-PLE 0.21, ALE-PLE 0.25; MOQ length 0.43, front width 0.35, back width 0.47. Femur I not darkened, legs without dark bands, tibia IV with basal dark spot on prolateral side. Leg cusps: tibiae I 0–1, II 0; metatarsi I 6–8, II 5–7; tarsi I 5–6, II 2–5. Embolus entire, constricted at tip (fig. 2); retrolateral tibial apophysis distal, long, sharply pointed (fig. 3).

FEMALE: Total length 7.56. Carapace 3.35 long, 2.71 wide. Femur II 2.62 long. Eye sizes and interdistances: AME 0.12, ALE 0.11, PME 0.12, PLE 0.11; AME-AME 0.12, AME-ALE 0.10, PME-PME 0.21, PME-PLE 0.24, ALE-PLE 0.25; MOQ length 0.42, front width 0.37, back width 0.45. Leg coloration as in male. Leg cusps: tibiae I 0, II 0; metatarsi I 1, II 0; tarsi I 0–1, II 1. Epigynum with long lateral margins (fig. 4); spermathecae on relatively narrow stalks (fig. 5).

OTHER MATERIAL EXAMINED: BRAZIL: Paraná: Pontal do Sul, Paranaguá, Dec. 1, 1992, coastal sand dunes, on herbaceous plants a few cm above the ground (A. B. Bon-



Figs. 6–9. *Trachelopachys quadriocellatus* (Mello-Leitão). 6. Left male palp, ventral view. 7. Same, retrolateral view. 8. Epigynum, ventral view. 9. Same, dorsal view.

aldo, MCN), 1♂, 2♀. *Rio de Janeiro*: restinga at Barra de Maricá, 22°57'S, 43°50'W, 38 km E Rio de Janeiro, May 18, 1991 (C. F. D. Rocha, AMNH, MCZ), 25♂, 13♀.

VARIATION: The specimens from Paraná have a basal dark spot on each of the leg tibiae.

DISTRIBUTION: Known only from south-eastern Brazil.

Trachelopachys quadriocellatus
(Mello-Leitão),
new combination
Figures 6–9

Ceto quadriocellata Mello-Leitão, 1939: 80, figs. 66–69 (lectotype female, designated by Forcart, 1961: 62, from Rio Lindo, Paraguay, in NMB, examined).

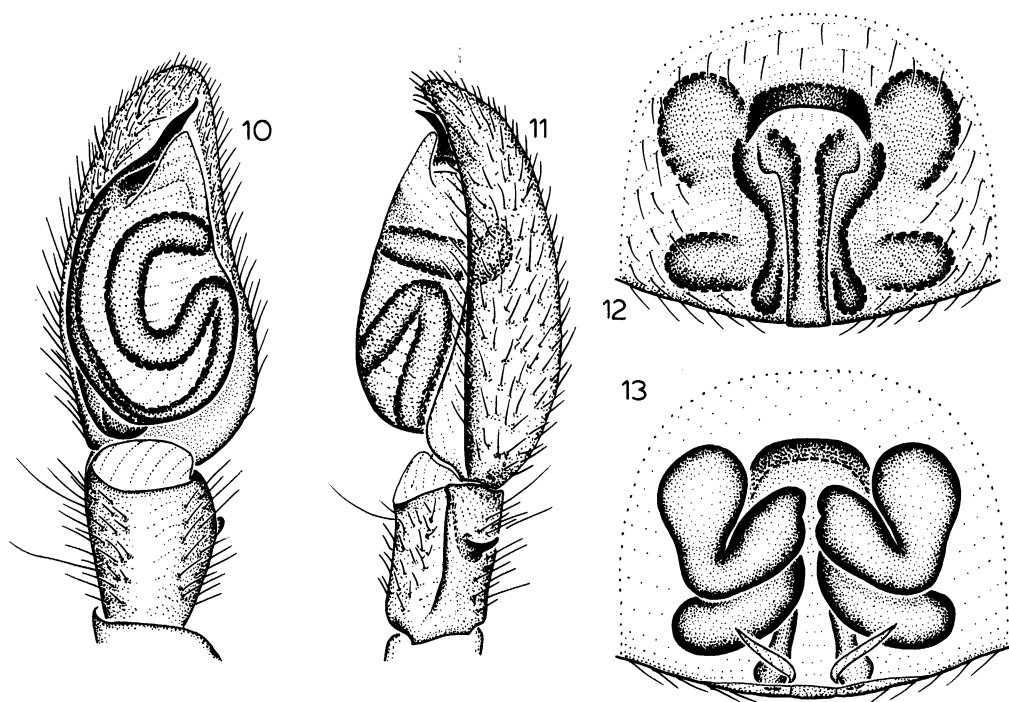
NOTE: As indicated by Platnick and Ewing (1995), the generic name *Ceto* Simon is a junior homonym replaced by *Cetonana* Strand.

DIAGNOSIS: This species is a member of the

keyserlingi group, and seems closest to *T. bicolor* Chamberlin from Peru and Bolivia, as the two species share a pointed, basally displaced retrolateral tibial apophysis in males and an m-shaped anterior epigynal margin and long median epigynal ducts in females. Males can be distinguished from those of *T. bicolor* by the more sinuous embolus (figs. 6, 7), females by the wider median portion of the anterior epigynal margin (figs. 8, 9).

MALE: Total length 5.63. Carapace 2.70 long, 2.27 wide. Femur II 1.98 long. Eye sizes and interdistances: AME 0.11, ALE 0.10, PME 0.11, PLE 0.11; AME-AME 0.11, AME-ALE 0.06, PME-PME 0.18, PME-PLE 0.24, ALE-PLE 0.25; MOQ length 0.39, front width 0.34, back width 0.40. Basal half of femur I darkened; tibiae and metatarsi with basal dark rings. Leg cusps: tibiae I 0, II 0; metatarsi I 7, II 6–8; tarsi I 10, II 4–5. Embolus sinuous (fig. 6); retrolateral tibial apophysis small, situated at about three-quarters of tibial length, directed distally (fig. 7).

FEMALE: Total length 6.22. Carapace 3.15 long, 2.65 wide. Femur II 2.26 long. Eye sizes



Figs. 10–13. *Trachelopachys caviunae* (Mello-Leitão). 10. Left male palp, ventral view. 11. Same, retrolateral view. 12. Epigynum, ventral view. 13. Same, dorsal view.

and interdistances: AME 0.11, ALE 0.10, PME 0.11, PLE 0.12; AME-AME 0.16, AME-ALE 0.14, PME-PME 0.27, PME-PLE 0.30, ALE-PLE 0.28; MOQ length 0.42, front width 0.37, back width 0.49. Leg coloration as in male. Leg cusps: tibiae I 0, II 0; metatarsi I 8, II 7; tarsi I 7–9, II 6–8. Anterior epigynal margin m-shaped, with wide median portion, median epigynal ducts long (figs. 8, 9).

MATERIAL EXAMINED: **ARGENTINA:** *Corrientes:* Estancia El Socorro, 1963 (W. Partridge, MACN), 2♂. *Salta:* Vespucio, Feb. 1973 (Bejarano, MACN), 1♂. *Tucumán:* Tafi del Valle, Oct. 18, 1948 (W. Partridge, MACN), 1♂, Jan. 16, 1981 (A. Roig, MACN), 2♀. **BOLIVIA:** *Cochabamba:* Colomi, Oct. 21, 1983 (E. Maury, MACN), 1♂; Confital, Oct. 18, 1983 (E. Maury, MACN), 1♂; Morochata, Oct. 19, 1983 (E. Maury, MACN), 2♀. **PARAGUAY:** *Presidente Hayes:* Ruta Transchaco, km 193, July 1990 (M. Ramírez, MACN), 1♀. *Dept. Unknown:* Río Lindo, 1895 (C. Ternetz, NMB, MNRJ), 1♂, 3♀ (including lectotype).

DISTRIBUTION: Bolivia, Paraguay, and northern Argentina.

Trachelopachys caviunae
(Mello-Leitão),
new combination
Figures 10–13

Trachela caviunae Mello-Leitão, 1947: 131, fig. 5 (female holotype from Caviuna, Paraná, Brazil, in MNRJ, examined).

DIAGNOSIS: This species is a member of the *keyserlingi* group, and seems closest to *T. ignacio* Platnick from Paraguay, as males of the two species share a small, medially situated retrolateral tibial apophysis and females of the two species share a narrow, thick, arched anterior epigynal margin. Males can be distinguished from those of *T. ignacio* by the larger embolus (figs. 10, 11), females by the shorter sides of the anterior epigynal margin (fig. 12) and the larger basal lobes (posterolateral epigynal ducts, fig. 13).

MALE: Total length 5.63. Carapace 2.67

long, 2.16 wide. Femur II 1.88 long. Eye sizes and interdistances: AME 0.12, ALE 0.11, PME 0.11, PLE 0.13; AME-AME 0.14, AME-ALE 0.05, PME-PME 0.20, PME-PLE 0.24, ALE-PLE 0.20; MOQ length 0.39, front width 0.38, back width 0.43. Basal three-quarters of femur I darkened, patellae lighter than distal leg segments. Leg cusps: tibiae I 0, II 0; metatarsi I 7–8, II 6; tarsi I 7, II 5. Embolus large, wider than tip of tegular projection (fig. 10); retrolateral tibial apophysis small, narrow, situated at middle of tibial length (fig. 11).

FEMALE: Total length 7.63. Carapace 3.43 long, 2.86 wide. Femur II 2.29 long. Eye sizes and interdistances: AME 0.14, ALE 0.10, PME 0.11, PLE 0.10; AME-AME 0.18, AME-ALE 0.10, PME-PME 0.28, PME-PLE 0.31, ALE-PLE 0.32; MOQ length 0.47, front width 0.46, back width 0.50. Leg coloration as in male. Leg cusps: tibiae I 0, II 0; metatarsi I 2–4, II 3; tarsi I 4–7, II 2. Anterior epigynal margin narrow, thick, arched, not extended laterally (fig. 12); posterolateral epigynal ducts long, extending to sides (fig. 13).

MATERIAL EXAMINED: **BRAZIL:** *Paraná:* Caviuna (MNRJ), 1♀ (holotype). *São Paulo:* Sítio Noveli, Sept. 9, 1987 (I. M. P. Rinaldi, I. C. Forti, UESP), 1♀, June 8, 1988 (I. M. P. Rinaldi, I. C. Forti, UESP), 1♀; Usina Sá Manuel, Sept. 29, 1986 (I. M. P. Rinaldi, I. C. Forti, UESP), 1♂, Feb. 9, 1988 (I. M. P. Rinaldi, I. C. Forti, UESP), 1♀.

DISTRIBUTION: Known only from south-eastern Brazil.

NATURAL HISTORY

STUDY AREA

Fieldwork was carried out from June 1991 to May 1992 at the type locality of *T. ammobates*. The restingas are coastal sand dune habitats covered with herbaceous and shrubby vegetation adapted to high salinity and sandy substrate (Suguio and Tessler, 1984). The restinga habitats are common along the Brazilian coast. The climate of Barra de Maricá is wet and warm with marked seasonality in rainfall. There is a wet season from October to April and a dry season from May to September. Annual rainfall in the area varies from 1000 to 1350 mm. The mean annual temperature in the area varies between 22 and 24°C (Nimer, 1972, 1979).

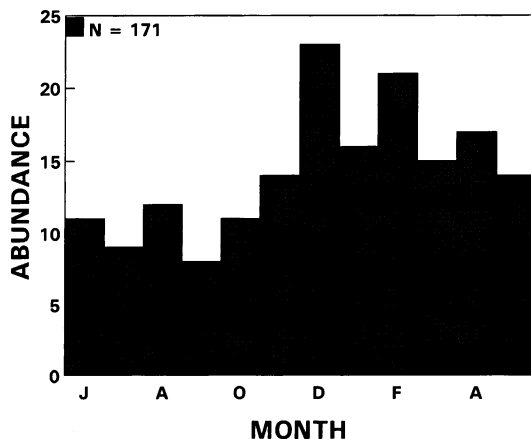


Fig. 14. Abundance of specimens of *Trachelopachys ammobates*, new species, by month (June through May).

FIELD SAMPLING

The activity pattern of *T. ammobates* was estimated by walking at a moderate pace along transects of 1200 m in the restinga at hourly intervals between 6:00 and 19:00 h, recording the number of active spiders, expressed as the number of censused spiders within each one-hour interval. The transects were made on two consecutive days each month and the cumulative number of spiders recorded during the transects was used to represent the relative abundance of spiders each month. The relative abundance of spiders during the months of wet and dry season was compared using a one-way analysis of variance.

When a spider was found, its height in the microhabitat (in cm, in relation to the ground), the type of microhabitat in which it was first seen, and the level of activity (whether stationary or moving when first seen) were recorded. In addition, ten individual spiders were observed for 10 minutes each (using binoculars), and the amount of time spent by each spider while moving or remaining motionless was recorded, using a chronometer. Nocturnal activity was evaluated by walking in the area for two hours each night (two nights/month) between 19:00 and 05:00 AM.

RESULTS

Individuals of *T. ammobates* were always found alone during the study. The number of spiders observed along the transects varied

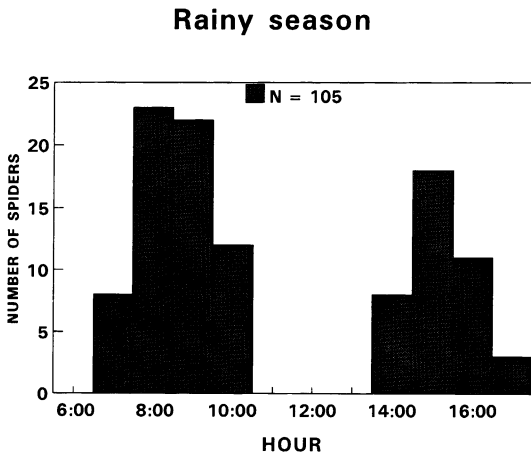


Fig. 15. Daily activity of specimens of *Trachelopachys ammobates*, new species, during the rainy season.

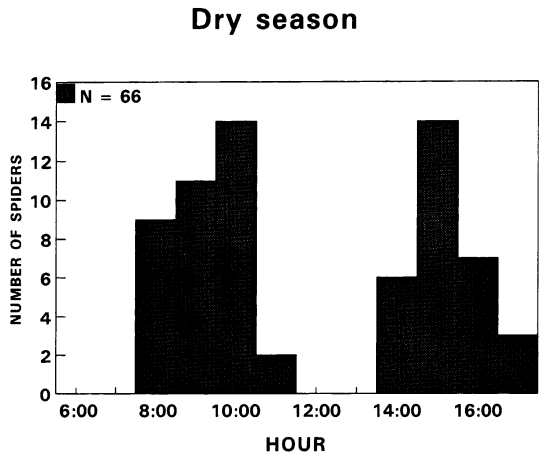


Fig. 16. Daily activity of specimens of *Trachelopachys ammobates*, new species, during the dry season.

throughout the year (fig. 14). The mean abundance of spiders recorded in the transects was significantly higher during the wet season (Nov–Apr; 17.7 ± 3.6) when compared to that of the dry season (Jun–Oct; 10.8 ± 2.1) (ANOVA, $F = 19.03$; $P < 0.001$). In both seasons the activity pattern of *T. ammobates* was bimodal (figs. 15, 16). The spiders began activity between 07:00–08:00 h and finished between 17:00–18:00 h, with peaks of activity occurring between 09:00–10:00 h and 15:00–16:00 h (figs. 15, 16). No active specimens were found during the nocturnal observations. Most of the spiders observed ($N = 157$) were on the ground, generally on open sand ($N = 125$; fig. 17). A few spiders were found on the vegetation (on *Sporobolus virginicus*, Gramineae, a herbaceous plant characteristic of the restingas) but always at low height (averaging 5.6 ± 2.5 cm above the ground). The nocturnally observed shelters of this species were usually under leaf litter or pieces of wood.

Most of the *T. ammobates* observed were moving actively when first seen (71%; $N = 121$), while the others (29%; $N = 50$) were motionless. The spiders spent a considerable proportion of the total observation time (600 sec) moving about (51%; $\bar{x} = 307.1 \pm 144.7$ sec; $N = 10$).

DISCUSSION

The data indicate that *T. ammobates* is a solitary spider that is active in Barra de Mar-

icá restinga throughout the year, but that its abundance is greatest during the rainy season. The greater abundance in the wet period may be related to the greater abundance of soil arthropods during this period (Rocha, 1992), many of which may be potential prey for the spiders.

This spider has an exclusively diurnal activity pattern, typically bimodal in both seasons. In the summer (rainy season), the spider begins activity earlier (probably due to the earlier sunrise during this season). In both seasons there was an interruption of activity between 11:00 and 14:00 h, coincident with

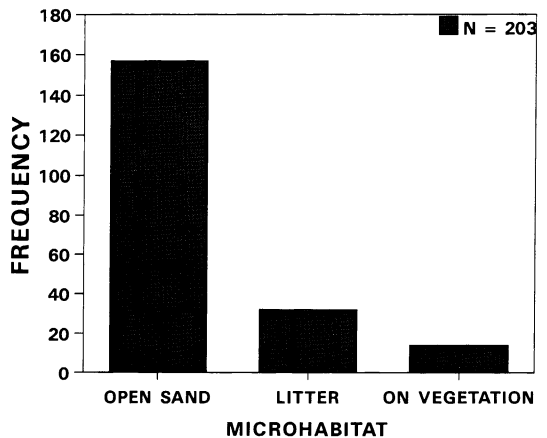


Fig. 17. Abundance of specimens of *Trachelopachys ammobates*, new species, found in three microhabitats.

the hottest period of the day, when the top layer of the sand in the area can reach temperatures between 52 and 60° C (averaging 55° C; Rocha, 1988). The high temperatures of the sand near midday may inhibit the spider's activity. However, during the active period, the animals spend approximately 50% of their time in motion. The data indicate that the preferred microhabitat of *T. ammobates* is on open sand and that the species has little tendency to use the microhabitat vertically.

The conspicuous black and red coloration of this spider against the white sand, together with its high rate of movement in an open habitat, makes it easily distinguished from the white sand which, in turn, would favor its finding by predators. Whether this coloration represents an aposematic strategy for the advertisement to predators of a disagreeable characteristic (e.g., unpalatability) requires additional study.

REFERENCES

- Forcart, L.
1961. Katalog der Typusexemplare in der Arachnida-Sammlung des Naturhistorischen Museums zu Basel: Scorpioni-
dea, Pseudoscorpionidea, Solifuga, Opilioni-
idea und Araneida. Verhandl. Naturf. Ges. Basel 72: 47–87.
- Mello-Leitão, C. F. de
1939. Araignées américaines du Musée d'histoire naturelle de Bâle. Revue Suisse Zool. 46: 43–93.
1947. Algumas aranhas novas de Pedra Açú e Paraná. Papéis Avulsos Dept. Zool. S. Paulo 8: 127–135.
- Nimer, E.
1972. Climatologia da Região sudeste do Brasil- Introdução à climatologia dinâmica. Subsídios à geografia regional do Brasil. Rev. Bras. Geogr. 34(1): 3–48.
1979. Climatologia do Brasil. Instituto Brasileiro de Geografia e Estatística, Rio de Janeiro, 422 pp.
- Platnick, N. I.
1975. A revision of the South American spider genus *Trachelopachys* (Araneae, Clubionidae). Am. Mus. Novitates 2589: 25 pp.
- Platnick, N. I., and C. Ewing
1995. A revision of the tracheline spiders (Araneae, Corinnidae) of southern South America. Am. Mus. Novitates 3128: 41 pp.
- Rocha, C. F. D.
1988. Ritmo de atividade e microclimatologia do habitat de *Liolaemus lutzae* (Sauria: Iguanidae). An. Sem. Reg. Ecol. 6: 269–281.
1992. Ecologia e comportamento de *Liolaemus lutzae* (Sauria: Tropiduridae) em uma área de restinga do sudeste do Brasil. Ph.D. thesis, Departamento de Zoologia, Instituto de Biologia, Universidade Estadual de Campinas, Campinas, SP, Brasil, 176 pp.
- Suguio, K., and M. G. Tessler
1984. Planícies de Cordões litorâneos quaternários do Brasil: Origem e nomenclatura. In L. D. Lacerda, D. S. D. Araujo, R. Cerqueira, and B. Turcq (eds.), Restingas: Origem estrutura e processos. Anais do Simpósio Sobre Restingas Brasileiras, Niteroi, pp. 15–25.

Recent issues of the *Novitates* may be purchased from the Museum. Lists of back issues of the *Novitates*, *Bulletin*, and *Anthropological Papers* published during the last five years are available free of charge. Address orders to: American Museum of Natural History Library, Department D, Central Park West at 79th St., New York, N.Y. 10024. TEL: (212) 769-5545. FAX: (212) 769-5009. E-MAIL: scipubs@amnh.org