



ARTÍCULO:

Description and ecology of two new species of the Brazilian spider genus *Losdolobus* Platnick & Brescovit (Araneae, Dysderoidea, Orsolobidae)

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Revista Ibérica de Aracnología

ISSN: 1576 - 9518.
Dep. Legal: Z-2656-2000.
Vol. 9, 30-VI-2004
Sección: Artículos y Notas.
Pp: 249–257.

Edita: **Grupo Ibérico de Aracnología (GIA)**

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ARTÍCULO:

DESCRIPTION AND ECOLOGY OF TWO NEW SPECIES OF THE BRAZILIAN SPIDER GENUS *LOSDOLOBUS* PLATNICK & BRESCOVIT (ARANEAE, DYSDEROIDEA, ORSOLOBIDAE)

Antonio D. Brescovit, Luis A. Bertonecello,
Ricardo Ott & Arno A. Lise

Abstract:

Two new species of *Losdolobus*, *L. opytapora* and *L. ybypora* are described based on males and females collected in a mixed ombrophilous forest area, in northern Rio Grande do Sul, Brazil. The females and the internal structures of the epigynum are described for the first time for this genus.

Key words: Araneae, Orsolobidae, Haplogynae, *Losdolobus*, taxonomy, new species, Brazil.

Taxonomy:

Losdolobus opytapora sp. n.
Losdolobus ybypora sp. n.

Descripción y ecología de dos nuevas especies del género de arañas brasileño *Losdolobus* Platnick & Brescovit (Orsolobidae, Dysderoidea, Araneae)

Resumen:

Se describen dos nuevas especies de *Losdolobus* Platnick & Brescovit en base a machos y hembras colectados en una área de bosque ombrófilo mixto en el norte de Rio Grande do Sul, Brasil: *L. opytapora* y *L. ybypora*. Es la primera vez que se describen las hembras de este género y las estructuras internas de la vulva.

Palabras clave: Araneae, Orsolobidae, Haplogynae, *Losdolobus*, taxonomía, nuevas especies, Brasil.

Taxonomy:

Losdolobus opytapora sp. n.
Losdolobus ybypora sp. n.

Introduction

The family Orsolobidae is represented, in South America, by six genera and thirty-three species (Platnick, 2004). These taxa are found in southern Chile, adjacent parts of Argentina and southern Brazil (Forster & Platnick 1985; Platnick & Brescovit, 1994).

The first and unique Brazilian orsolobid was recently recorded, with the proposition of the monotypic genus *Losdolobus* by Platnick & Brescovit (1994), for the species *L. parana* from Paraná, Brazil. The phytogeographic distribution area for this species is characterized by the presence of *Araucaria angustifolia* (Bert.) O. Kuntze (Araucariaceae), a Brazilian pine tree that is, nowadays, distributed throughout the states of São Paulo, Paraná, Santa Catarina and Rio Grande do Sul (Leite, 2002; Ab'Saber, 2003).

Recently, several orsolobid specimens were collected during the development of two distinct projects, carried out by the second and third authors, in the Pró-Mata area, São Francisco de Paula, Rio Grande do Sul, Brazil. One project used arboreal photoeclectors on *A. angustifolia* (see Bertonecello, 2003) while the other, still unpublished (Ott *pers. comm.*), used pitfall traps. The orsolobid specimens were examined and assigned to two new species of the genus *Losdolobus*.

Several males and females of both species were collected, enabling us to describe the female genitalia in detail for the first time, since, according to Platnick and Brescovit (1994: 5), the epigynum of the type-species of the genus was lost during preparation. In addition, data on the ecology of these species is presented, since both projects were carried out for at least one year each and both species occur in the same area but in different niches.

Material and Methods

The material examined was deposited in the collections of the Instituto Butantan, São Paulo (IBSP, I. Knysak); Museu de Ciências Naturais, Fundação Zoobotânica do Rio Grande do Sul, Porto Alegre (MCN, E.H. Buckup) and Museu de Ciência e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre (MCTP, A.A. Lise), Description format follows Platnick & Brescovit (1994) and terminology of female genitalia follows Forster & Platnick (1985). All measurements are in millimeters. Micrographs were obtained with a JEOL (JSM 840A) scanning electron microscope from the "Laboratório de Microscopia Eletrônica do Departamento de Física Geral do Instituto de Física da Universidade de São Paulo (USP)".

Sampling sites were located at Centro de Pesquisa e Conservação da Natureza Pró-Mata (CPCN Pró-Mata; 29°27'-29°35'S, 50°08'-50°15'W), São Francisco de Paula, Rio Grande do Sul, Brazil, in the domain of the mixed ombrophilous forest (Araucaria forest) with stretches of dense ombrophilous forest and savanna, at altitudes of 900m. The climate varies from humid to very humid, with temperatures below 15°C during the winter season (Bertoletti & Teixeira, 1995).

The sampling methodologies included upwards and downwards arboreal photoeclectors and pitfall traps (similar to the techniques described in Adis, 1981 and Uetz & Unzicker, 1976). Ten upwards and ten downwards arboreal photoeclectors were assembled in 20 *Araucaria angustifolia* trees (Brazilian pine trees) measuring 1-1.60 m trunk circumference, at chest level. Spiders were collected monthly from July 2001 to June 2002. Upwards photoeclectors were placed 1.5 m above ground and downwards photoeclectors 5 m above ground. Sixty pitfall traps, measuring 10 cm diameter and 15 cm depth, were placed in six areas with three different arboreal vegetation cover (primary forest, secondary forest and *Pinus* sp. silvicultures), ten in each area. Pitfall traps were emptied monthly from October 2000 to May 2002. Both trap types used formalin as preserving fluid, 2% in photoeclectors and 4% in pitfall traps.

Systematics

Genus *Losdolobus* Platnick & Brescovit

Losdolobus Platnick & Brescovit, 1994: 4.

TYPE SPECIES *L. parana* Platnick & Brescovit.

DIAGNOSIS. Species of the genus *Losdolobus* can be distinguished from all South American orsolobids by two exclusive characters in the female palp: the inflated tibia (Figs. 3, 13, 18, 23, see Platnick, 1994, fig. 16) and obsolete palpal claw, surrounded by strong, smooth tipped spines (Figs. 4, 14). Complementary and comparative diagnostic characters can be found in Platnick & Brescovit (1994: 4).

NOTE. The collection of abundant material enabled the examination of structures that were not studied in the original generic description. Complementary data on morphology are here included.

COMPLEMENTARY DESCRIPTION. Chelicerae ventrally with two promarginal teeth and two retromarginal teeth, which can be absent (Figs. 1; 8); one conspicuous sensilla and row of 5-6 plumose hairs at base of fang, and, strong spine in median area (Fig. 8). Legs with relatively long claws, with long (Fig. 2) or short (Fig. 9) lateral flanges; trichobothria typical for family (see also Forster & Platnick, 1985, fig. 863), with long trichoma and bothrium formed by short, striated hood, circular plate with oval opening, divided into two parts, superior transversely striated, inferior smooth (Fig. 11). Female palp with greatly reduced claw, with four or more strong, smooth tipped spines at ventral apex (Figs. 4, 14). Female genitalia with anterior elements consisting of long rod partially covered by soft receptaculum without secretory pores and transverse, sinuous, narrow central process. Posterior elements consisting of circular secretory plate with short extensions and large and rectangular posterior receptaculum (Figs. 19; 24).

Losdolobus opytapora Brescovit, Bertonecello & Lise **sp. n.**

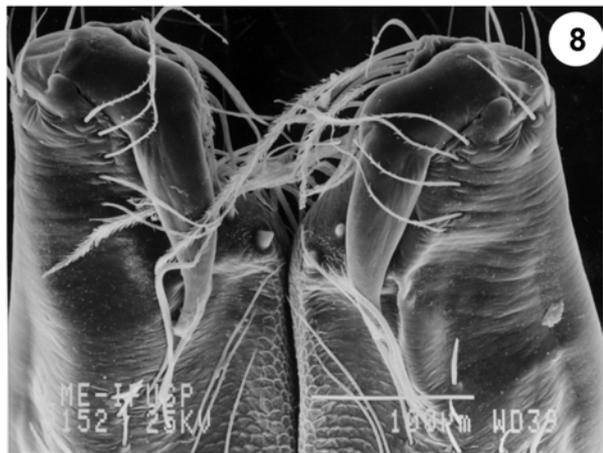
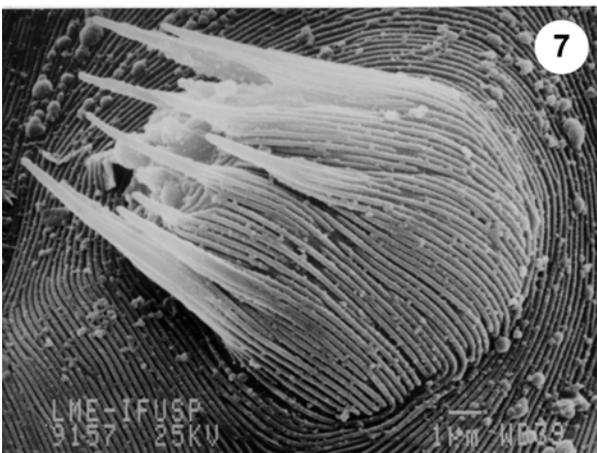
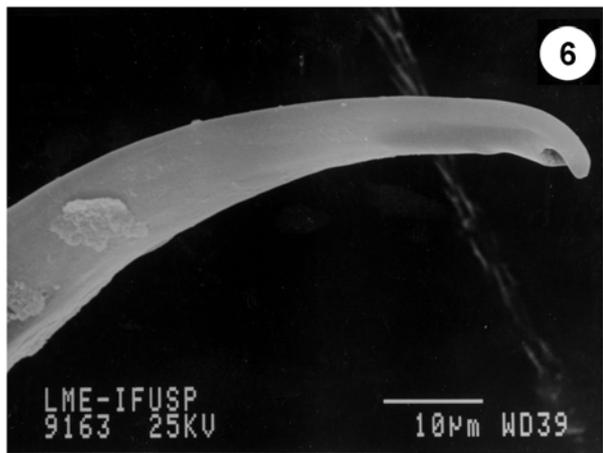
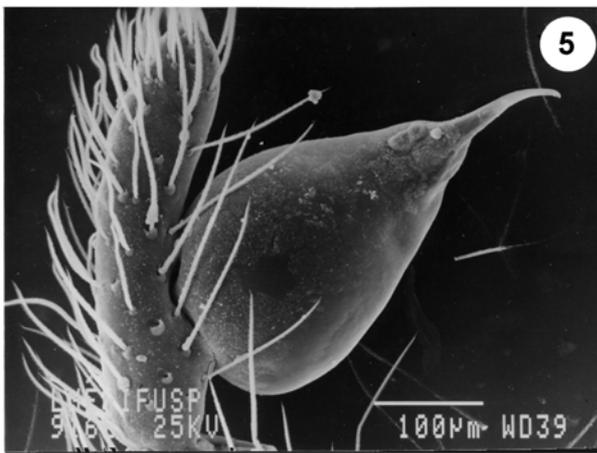
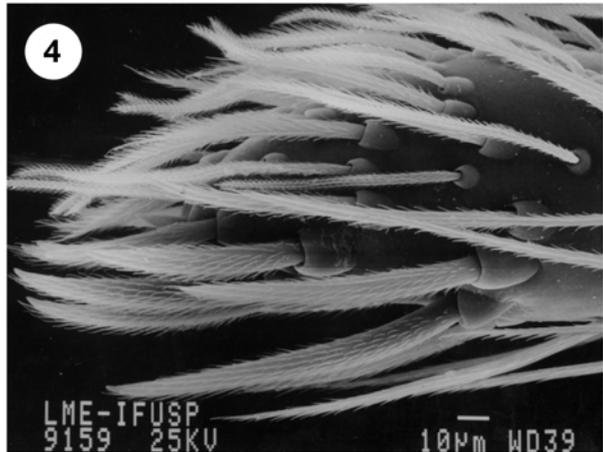
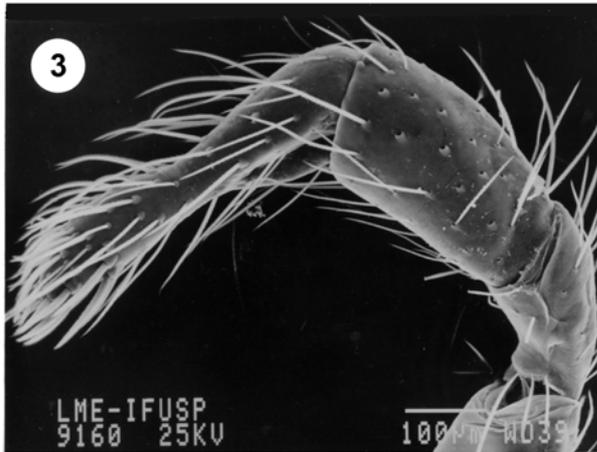
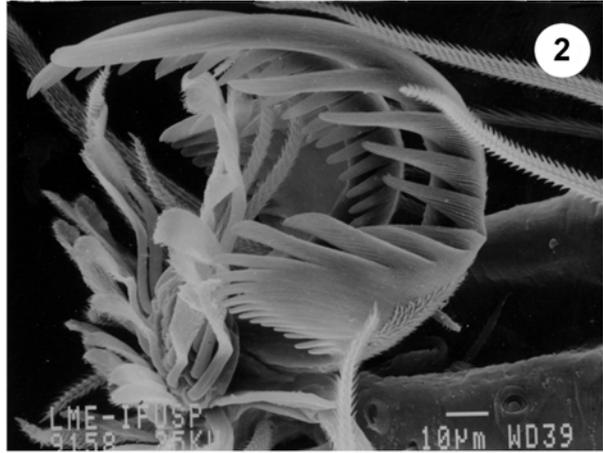
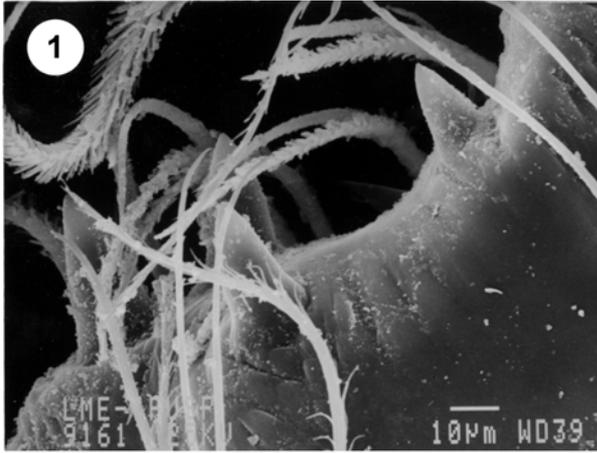
Figs. 1-7, 15-19

TYPES. Male holotype and female allotype from Centro de Pesquisas e Conservação da Natureza Pró-Mata, São Francisco de Paula, Rio Grande do Sul, Brazil, Aug. 2001-July 2002, L.A. Bertonecello col., deposited in MCTP 16349. Paratypes: two males and two females, with same data of the holotype, deposited in IBSP 42271; 42272; MCN 37009).

ETYMOLOGY. The specific name is an adjective taken from the Brazilian "Tupi-guarani" indian language that means tree dwellers, to be treated as a noun in apposition..

DIAGNOSIS. The male of *L. opytapora* resembles that of *L. parana* in the conformation of the palp. It differs by the longer and smooth embolus and having the distal third of the tegulum less excavated (Figs. 5-6; 15-16). The female differs from *L. ypypora* by the rod with bifid apex and circular secretory plate with conspicuous extension and very enlarged posterior receptaculum (Fig. 19) and from *L. parana* by having the tarsus of pedipalp ventrally grooved and narrowed at tip (Fig. 18).

Fig. 1-8. *Losdolobus opytapora* sp. n. **1.** female, chelicerae, ventral view. **2.** female, tarsal claws I, lateral view. **3-4:** female palp, lateral view: **3.** tibia and metatarsus. **4.** distal area. **5-6:** male palp. **5.** bulb, prolateral view. **6.** embolus, prolateral view. **7.** female, leg. I, tarsal organ. **8.** *Losdolobus ybypora* sp.n., chelicerae, ventral view.



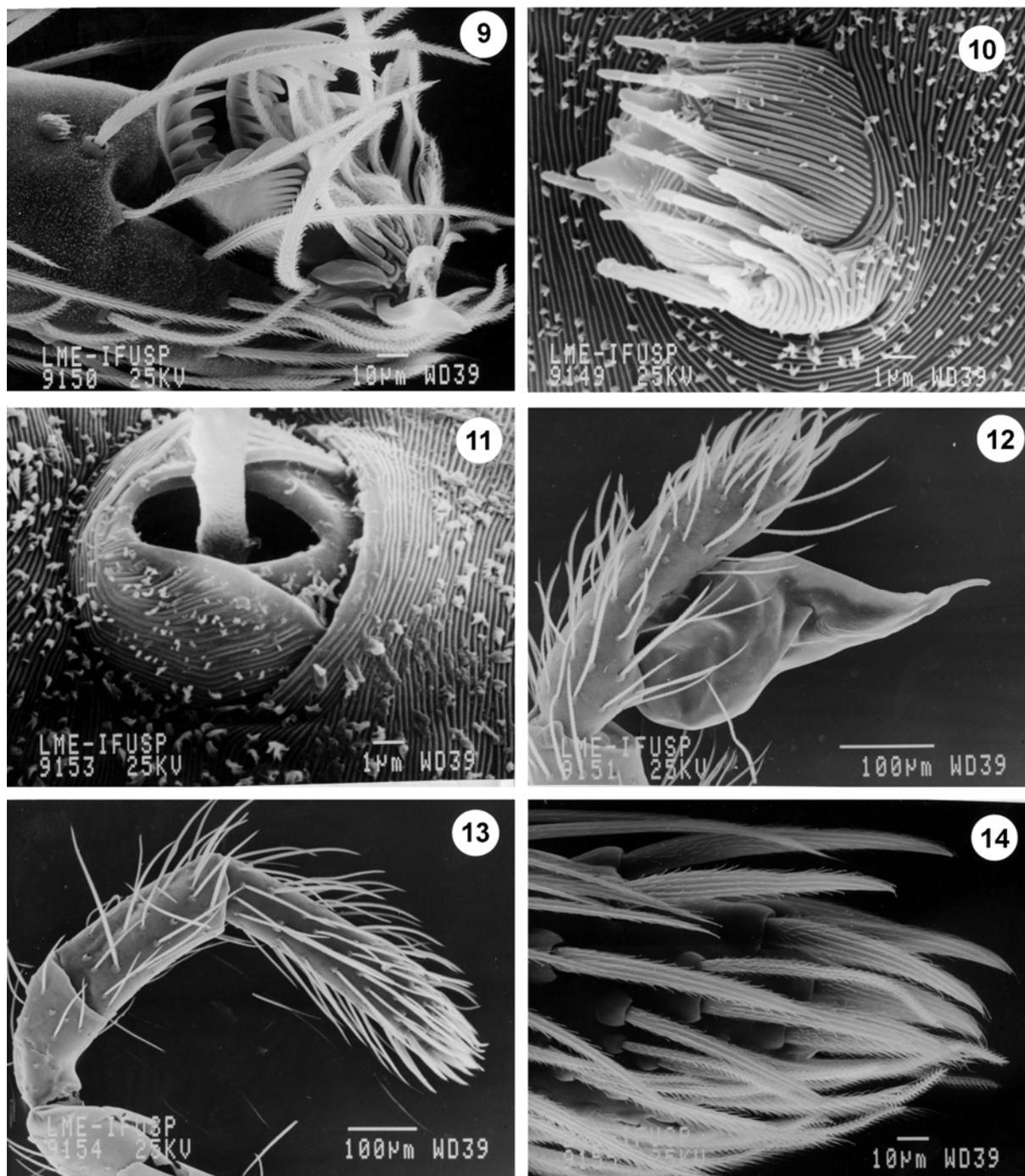


Fig. 9-14. *Losdolobus ybypora* sp. n. **9.** female, tarsal claws I, lateral view. **10.** female, leg. I, tarsal organ. **11.** trichobothria, dorsal view. **12.** male palp, bulb, prolateral view. **13-14:** female palp, lateral view: **13.** tibia and metatarsus. **14.** distal area.

DESCRIPTION.

MALE. Carapace, chelicerae, labium, endites and sternum yellow. Eyes with black borders. First two pairs of legs light yellow, posterior two pairs of legs brownish yellow. Abdomen gray with six pairs of transverse pale stripes on dorsum and spinnerets yellow.

Total length 2.40. Carapace 1.10 long, 0.9 wide. Abdomen 1.20 long, 0.8 wide. Eye diameters: ALE 0.14, PLE 0.14, PME 0.12. PME separated by 1/3 of diameter of ALE. PLE separated by 3.0 times their

diameter. Chelicerae 0.6 long, with two promarginal and two retromarginal teeth (Fig. 1). Sternum slightly wider than long. Leg spination: tibiae: III d0-1-0, p1-1-0, v0-0-2, r1-0-0; IV d0-0-1, p1-1-1, v0-0-2, r1-1-0; metatarsi III d0, p1-1-0, v0, r1-1-0; IV d0, p1-1-0, v0, r1-1-0. Tarsal organ with four short receptor lobes and 10 or more cuticular lobes (Fig. 7). Claws relatively long, with wide long lateral flanges, especially on anterior legs (Fig. 2). Leg measurements I - femur 1.30/ patella 0.40/ tibia 1.20/ metatarsus 1.30/ tarsus 0.60/ total 4.80;

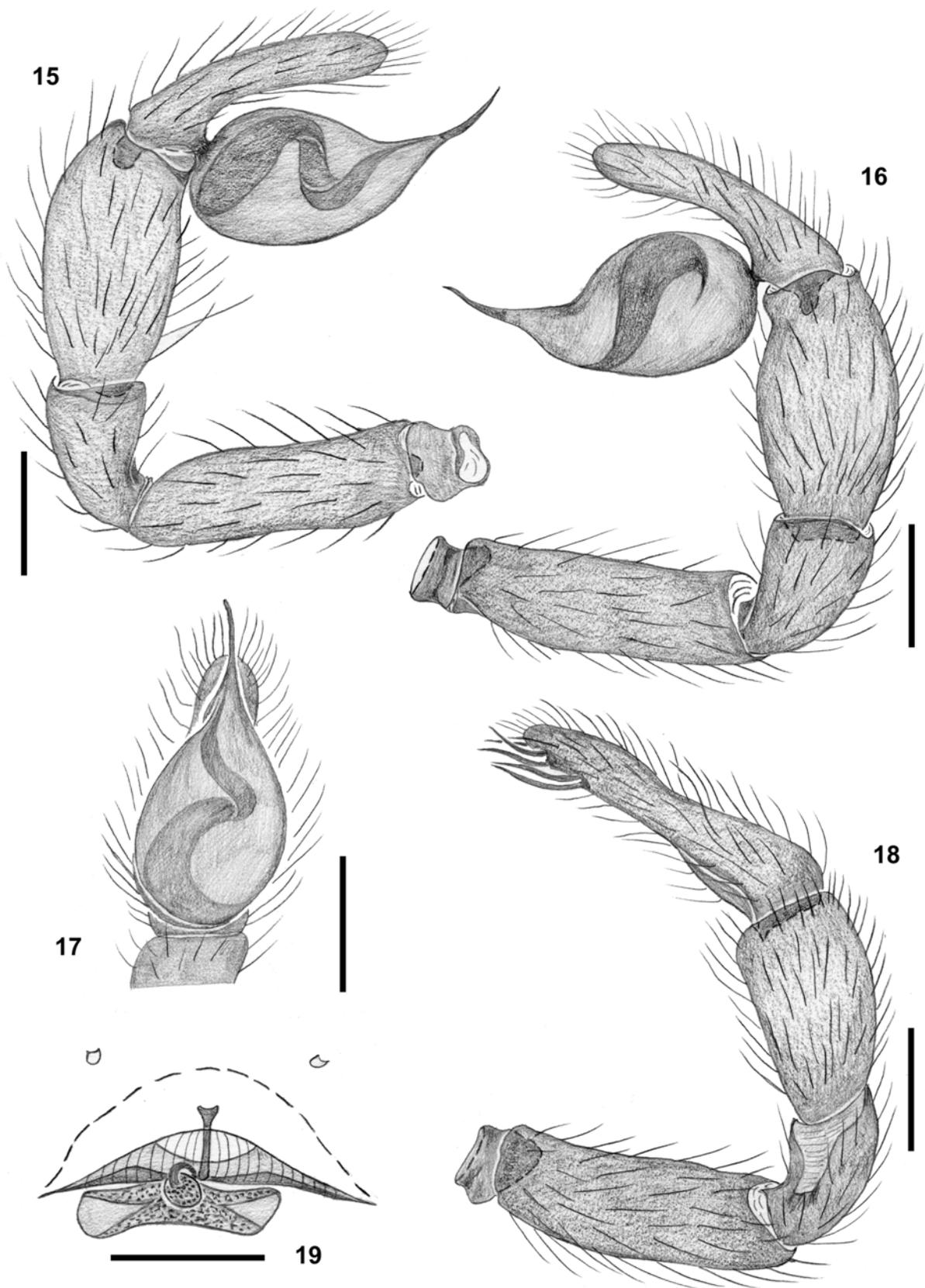


Fig. 15-19. *Losdolobus opytapora* sp. n. **15-17:** male palp: **15.** left palp, prolateral view. **16.** same, retrolateral view. **17.** same, ventral view. **18-19:** female: **18.** palp, retrolateral view. **19.** vulva, dorsal view. Scale bars: 0,25.

II – 1.30/ 0.40/ 1.20/ 1.20/ 0.50/ 4.60; III – 1.10/ 0.40/ 0.80/ 0.90/ 0.40/ 3.60; IV – 1.40/ 0.50/ 1.20/ 1.00/ 0.50/ 4.60. Palpal bulb simple and oval, almost as long as cymbium and sinuous reservoir (Figs. 5-6; 15-17).

FEMALE. Coloration as in male, except palpi, orange. Total length 3.30. Carapace 1.30 long, 1.00 wide. Abdomen 1.80 long, 1.20 wide. Eye diameters: ALE 0.12, PLE 0.14, PME 0.14. PME separated from ALE as in male. PLE separated by 2.5 times their diameter. Chelicerae 0.5 long, as in male. Sternum as wide as long. Leg spination: tibiae: III d0-1-0, p1-1-0, v0-0-1p, r1-1-0; IV d0, p1-1-0, v0-0-2, r1-1-0; metatarsi III d0, p1-1-1, v0-1r-1r, r1-1-0; IV d0, p1-1-1, v2-1r-2, r1-1-1. Tarsal organ and claws as in male. Leg measurements I - femur 1.20/ patella 0.60/ tibia 1.00/ metatarsus 1.30/ tarsus 0.40/ total 4.50; II – 1.10/ 0.50/ 0.90/ 1.10/ 0.40/ 4.00; III – 1.00/ 0.40/ 0.60/ 0.90/ 0.40/ 3.30; IV – 1.40/ 0.50/ 0.90/ 1.40/ 0.50/ 4.70. Palpal tibia swollen, wider than other segments, not expanded distally beyond articulation with tarsus (Figs. 3, 18). Palpal tarsus with very reduced claw, with four or more strong, smooth tipped spines at ventral apex (Fig. 4). Internal genitalia with straight rod and central process sinuous, circular secretory plate with curved anterior extension, posterior receptaculum rectangular, covered with small pores, except for two poreless triangular lateral regions (Fig. 19).

VARIATION. Four males: total length 2.40-2.80; carapace 1.10-1.20; femur I 1.20-1.30; Ten females: total length 2.80-3.30; carapace 1.30-1.40; femur I 1.20-1.40.

OTHER MATERIAL EXAMINED. Brazil. **Rio Grande do Sul**, São Francisco de Paula, Centro de Pesquisas e Conservação da Natureza Pró-Mata, one female, 2001-2002, R. Ott col. (MCN 37010); seven males and nine females, Aug. 2001-July.2002, L.A. Bertonecello col. (MCTP 16350-16354; IBSP 42273; 42274.); nine males and ten females, Jun. 2002, L.A. Bertonecello col. (MCTP 16356).

DISTRIBUTION. Known only from the type locality.

Losdolobus ybypora Brescovit, Ott & Lise **sp. n.** Figs. 8-14, 20-24

TYPES. Male holotype and female allotype from Centro de Estudos e Conservação da Natureza Pró-Mata, São Francisco de Paula, Rio Grande do Sul, Brazil, 2001. R. Ott col., deposited in MCN 37011, 37012. Paratypes: male and female, with same data of the holotype, deposited in IBSP 42275; 42276; male with same data of the holotype, MCTP 16355; one female, with same locality of the holotype, Aug. 2001-July 2002, L.A. Bertonecello deposited in MCTP 16348.

ETYMOLOGY. The specific name is an adjective taken from the Brazilian “Tupi-guarani” indian language that means ground dwelling, to be treated as a noun in apposition.

DIAGNOSIS. The male of *L. ybypora* differs from the

other species by the presence of a twisted embolus enlarged at its base (Figs. 12) and by the enlarged base of the reservoir in the palpal bulb (Fig. 22). The female differs from *L. opytapora* by the presence of a straight rod and circular secretory plate with inconspicuous extension (Fig. 24) and from *L. parana* by the less inflated tibia of the palp (Fig. 23).

DESCRIPTION.

MALE. Coloration as in *L. opytapora*. Total length 2.70. Carapace 1.20 long, 1.00 wide. Abdomen 1.30 long, 0.9 wide. Eye diameters: ALE 0.12, PLE 0.12, PME 0.12. PME separated by 1/3 diameter of ALE. PLE separated by twice their diameter. Chelicerae 0.5 long, with two promarginal and two retromarginal teeth (Fig. 8). Sternum as wide as long. Leg spination: tibiae: III d0-1-0, p1-1-0, v0-1p-2, r0-0-1; IV d0-1-0, p1-1-0, v1r-0-2, r1-1-0; metatarsi III d0, p1-1-0, v0-2-2, r1-1-0; IV d0, p1-1-1, v1p-0-2, r1-1-0. Tarsal organ with four short and one long median receptor lobes and 14-16 cuticular lobes (Fig. 10). Claws relatively long, with short lateral flanges (Fig. 9). Leg measurements I - femur 1.20/ patella 0.50/ tibia 1.20/ metatarsus 1.30/ tarsus 0.40/ total 4.60; II – 1.20/ 0.50/ 1.10/ 1.30/ 0.40/ 4.50; III – 1.10/ 0.40/ 0.90/ 0.90/ 0.40/ 3.70; IV – 1.40/ 0.40/ 1.10/ 1.30/ 0.40/ 4.60. Palpal bulb oval, grooved at base of embolus (Figs. 20-22).

FEMALE. Coloration as in male. Total length 3.10. Carapace 1.30 long, 1.00 wide. Abdomen 1.80 long, 1.30 wide. Eye diameters: ALE 0.12, PLE 0.16, PME 0.16. PME separated from ALE as in male. PLE separated by twice their diameter. Chelicerae 0.5 long. Sternum as in male. Leg spination: tibiae: III d0-1-0, p0-1-1, v0-0-2, r0-0-1; IV d0, p1-1-0, v0-0-2, r1-1-1; metatarsi III d0, p0-1-1, v0-1p-2, r0-1-1; IV d0, p0-1-1, v0-2-2, r0-1-1. Tarsal organ and claws as in male. Leg measurements I - femur 1.30/ patella 0.50/ tibia 1.00/ metatarsus 1.10/ tarsus 0.40/ total 4.30; II – 1.20/ 0.50/ 1.10/ 1.10/ 0.40/ 4.30; III – 1.10/ 0.40/ 0.80/ 0.80/ 0.30/ 3.40; IV – 1.40/ 0.50/ 1.00/ 1.30/ 0.50/ 4.70. Palpal tibia less swollen, slightly wider than other segments, medially arched, not expanded distally beyond articulation with tarsus. Palpal tarsus with greatly reduced claw, not grooved, slightly narrowed at tip, with six or more strong and smooth tipped spines (Fig. 13). Internal genitalia with rod not bifid at tip and central process sinuous, circular secretory plate medially positioned, posterior receptaculum almost square, with sinuous border, covered with bands of pores intercalated by smooth areas (Fig. 24).

VARIATION. Eight males: total length 2.60-2.70; carapace 1.10-1.20; femur I 1.20-1.30; four females: total length 3.10-3.40; carapace 1.20-1.40; femur I 1.10-1.30.

OTHER MATERIAL EXAMINED. Brazil. **Rio Grande do Sul**, São Francisco de Paula, Centro de Estudos e Conservação da Natureza Pró-Mata, four males and two females, 2001-2002, R. Ott col. (MCN 37013-37017; IBSP 42277).

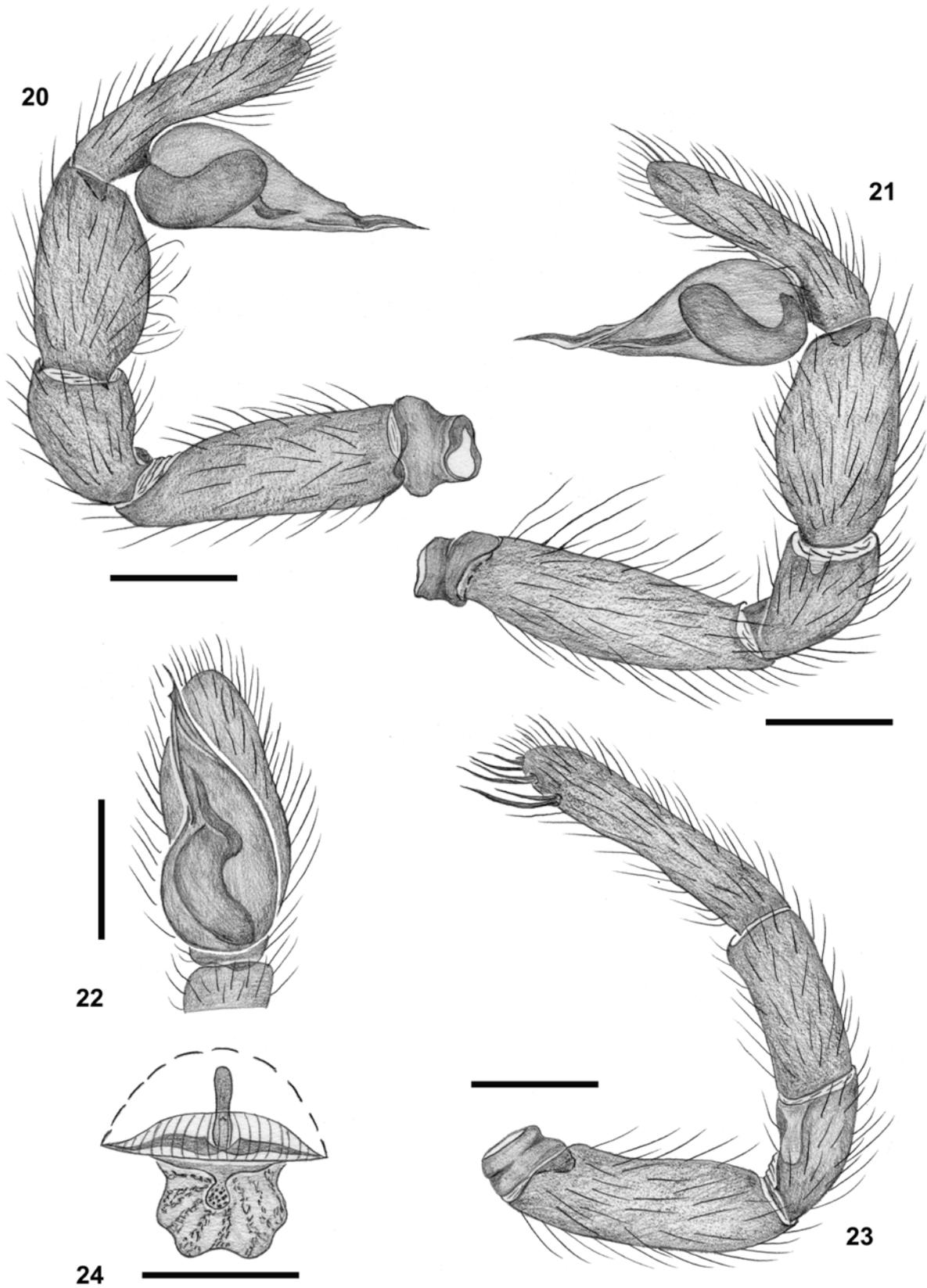


Fig. 20-24. *Losdolobus ybypora* sp. n. **20-22:** male palp: **20.** left palp, prolateral view. **21.** same, retrolateral view. **22.** same, ventral view. **23-24:** female: **23.** palp, retrolateral view. **24.** vulva, dorsal view. Scale bars: 0,25.

DISTRIBUTION. Known only from the type locality.

ECOLOGY. A total of 64 specimens of *L. opytapora* were collected in arboreal photoecletors, of which 25 more males and 39 females. This species was most abundant in upwards photoecletors (60 individuals) but was also found in downwards photoecletors (four individuals). Only three specimens of *L. opytapora* were recorded in pitfall-traps, suggesting that this species is probably a trunk-dweller. The opposite was verified for *L. ybypora*, with 12 specimens (seven males, five females) collected in pitfall-traps and only two in photoecletors, suggesting that this is probably a typical litter-dwelling species.

Seasonality results suggest that *L. ybypora* and *L. opytapora* are winter-active species, with adult specimens occurring between May and October (Figs. 25-28). The number of spiders collected in pitfall traps shows that *L. opytapora* was found only in primary forests. They were not found in secondary forests and silvicultures, where *A. angustifolia* trees are completely absent.

Although Dippenaar-Schoeman & Jocqué (1997) stated that Orsolobidae are wandering litter-dwellers, little is known of the Brazilian species. Nevertheless, the sampled material suggests that they inhabit both litter and tree trunks.

The sex ratio suggests that both males and females show similar activity and are wandering hunters. The presence of active females suggests a non web-building habit. No clear reproductive peaks, with more male activity (Draney, 1997) were recognized.

Acknowledgements

We thank Hubert Höfer, Cristina A. Rheims and Charles E. Griswold for helpful suggestions on the manuscript. Prof. Pedro Kiyohara and Miss Simone Perche de Toledo (IF/USP) for making the scanning electron micrographs. This work was supported by Biota/Fapesp 99/05446-8 and CNPq (ADB; LAB), CAPES (RO) and Fapergs-IMA (RO; LAB; AAL).

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Fig. 25. Seasonal activity of *Losdolobus opytapora* n.sp. captured with pitfall traps from October/2000 – May/2002. The numbers of males and females are represented by hatched and black bars, respectively.

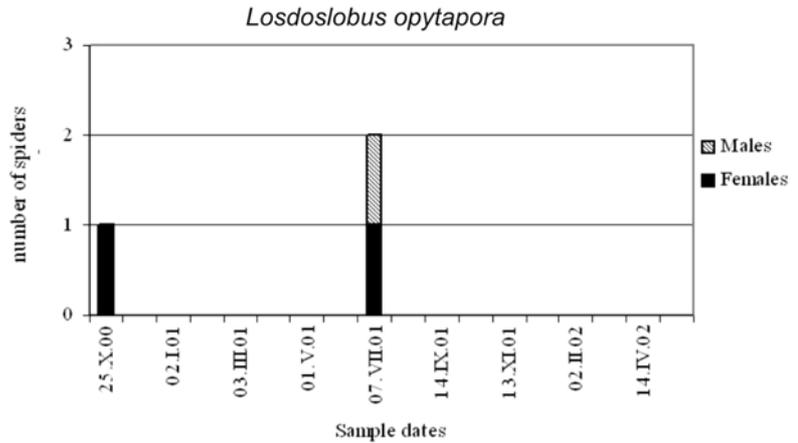


Fig. 26. Seasonal activity of *Losdolobus ybypora* n.sp. captured with pitfall traps from October/2000 – May/2002. The numbers of males and females are represented by hatched and black bars, respectively.

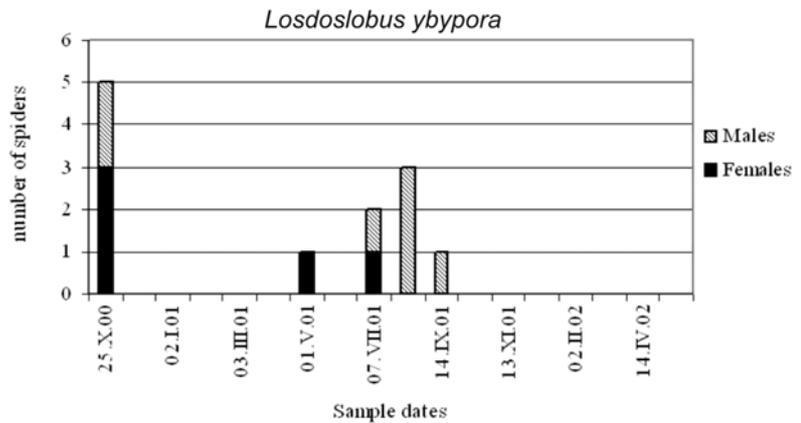


Fig. 27. Seasonal activity of *Losdolobus opytapora* n.sp. captured with arboreal photoecletors, from July/2001 – June/2002. The numbers of males and females are represented by hatched and black bars, respectively.

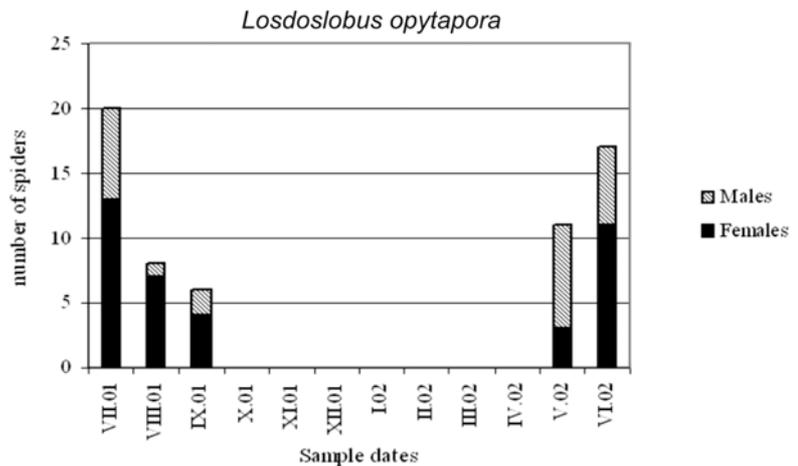


Fig. 28. Seasonal activity of *Losdolobus ybypora* n.sp. captured with arboreal photoecletors, from July/2001 – June/2002. The numbers of males and females are represented by hatched and black bars, respectively.

