

FIRST SOUTH AMERICAN RECORDS OF *HOLOCNEMUS PLUCHEI* (SCOPOLI, 1763) AND *SPERMOPHORA SENOCULATA* (DUGÈS, 1836) (ARANEAE: PHOLCIDAE)

PRIMEROS REGISTROS SUDAMERICANOS DE *HOLOCNEMUS PLUCHEI* (SCOPOLI, 1763) Y *SPERMOPHORA SENOCULATA* (DUGÈS, 1836) (ARANEAE: PHOLCIDAE)

Alvaro Laborda¹ & Miguel Simó¹

¹Sección Entomología. Facultad de Ciencias. Universidad de la República. Iguá 4225. CP 11400. Montevideo, Uruguay. Email: simo@fcien.edu.uy

RESUMEN

Holocnemus pluchei y *Spermophora senoculata* fueron halladas en construcciones humanas en cuatro localidades de Uruguay y una de Argentina. Estos son los primeros registros para Sudamérica de estas dos especies sinantrópicas.

Biological invasions have increased in the last centuries due to the growth of people movements and global trade (Kobelt & Nentwig 2008). In line with this scenario, synanthropic and opportunist spider species have established populations outside of their original distribution ranges. Problems caused by biological invasions in the local biodiversity or human economy and health justify reporting new cases as the basis to understand the causes of the introductions and to put in practice strategies of control and monitoring. Spiders constitute a megadiverse group that distributes in almost all terrestrial habitats (Levi & Coddington 1991); many species are potentially tolerant to live close to human activities. The family Pholcidae currently includes 999 described species, being the ninth family in species richness in the order Araneae (Platnick 2008). The cosmopolitan *Pholcus phalangoides* (Fuesslin, 1775) is considered the most widely distributed species of the family. Two others synanthropic species, *Holocnemus pluchei* (Scopoli, 1763) and *Spermophora senoculata* (Dugès, 1836), have increased their original geographical distributions by introduction into foreign areas; as such, today both are known from large parts of the northern hemisphere.

The genus *Holocnemus* Simon, 1875 currently includes three species originally distributed around the Mediterranean Sea. *H. pluchei*, the type species of the genus, has been introduced into Central Europe and the U.S.A (Jakob 1989; Bruvo-Madaric *et al.* 2005; Huber 2005; Platnick 2008). Jakob (1989, 1991) observed that this species had a wide range of behavioral variation, including solitary and group living. Jakob (1994) reported that webs of this species were mainly situated around buildings, especially in caves, openings of cinder blocks, and bushes. With a body length of 5-7 mm, *H. pluchei* is a relatively large pholcid; it has an oval and elongate abdomen with a brown stripe on the ventral side which covers its sternum and the abdomen. Dorsally, the prosoma has a longitudinal dark line; legs and opisthosoma are covered with clear and dark spots.

The genus *Spermophora* Hentz, 1841 comprises 37 species distributed in Africa and Southern and Southeast Asia (Platnick 2008). *S. senoculata*, the type species of the genus, has a holarctic distribution. Records of this species include the USA., southern Europe, northern Africa and East Asia (Huber 2002, 2005). Individuals of this species are tiny (2-3 mm body length), almost colorless, and have a spherical opisthosoma with slightly darker dorsal spots. In

America, the genus *Spermophora* is absent except for the synanthropic *S. senoculata* (Huber 2000). Huber (2002) considered this species to be among the commonest spiders in human buildings in the USA., but it has also invaded natural habitats in the USA and southern Europe (Huber 2005). One species, *S. maculata* Keyserling, 1891, was described from Brazil, but Huber (2000) suggested that the single damaged specimen may not even be a pholcid. Recently, specimens of *H. plucheii* and *S. senoculata* were found in Argentina and Uruguay. The main objective of this contribution is to report the first records of these species for South America.

The specimens were collected by hand in houses and other buildings in four urban localities from Uruguay (Paysandú, Las Piedras, Trinidad, and Montevideo) and one from Argentina (Córdoba). All specimens were deposited in the arachnological collection of the Facultad de Ciencias, Universidad de la República, Montevideo (FCE-Ar). Additional specimens were studied in the arachnological collection of the Museo Nacional de Historia Natural y Antropología (MUNHINA) of Montevideo. Abbreviations used below are m for male, f for female, and j for juvenile.

Holocnemus plucheii (Scopoli, 1763)

For a complete synonymic list, see Platnick (2008). It was collected near the windows or doors outside houses and others buildings.

New Records: Uruguay. *Montevideo* (34°54'04"S; 56°10'48"W): March 1967, 1 f, 4m, R. Capocasale Col. (MUNHINA 433); 25/03/2007, 1m, A. Laborda (FCE-Ar 2448). Canelones, *Las Piedras* (34°43'31"S; 56°13'26"W): 15/02/2007, 2 f, 2 m, 1 j, A. Laborda Col. (FCE-Ar 2437); 18/02/2007, 1 j, A. Laborda Col. (FCE-Ar 2438); 28/11/2006, 1 f, A. Laborda Col. (FCE-Ar 2439); 27/11/2006, 1 f, A. Laborda Col. (FCE-Ar 2440); 21/01/2008, 1 m, A. Laborda Col. (FCE-Ar 2441). Flores, *Trinidad ad* (33°31'05"S; 56°53'52"W): 26/04/2007, 1 f, 1 j, A. Laborda Col. (FCE-Ar 2442). *Paysandú* (32°19'05"S; 58°04'41"W): 17-23/03/2008, 3 f, 1 m, A. Laborda Col. (FCE-Ar 2447). Argentina, *Córdoba* (31°25'06"S; 64°11'16"W): April 2007. Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Córdoba, 2 f, 2 m, 2 j, A. Aisenberg Col. (FCE-Ar 2443) (Figs. 1, 2).

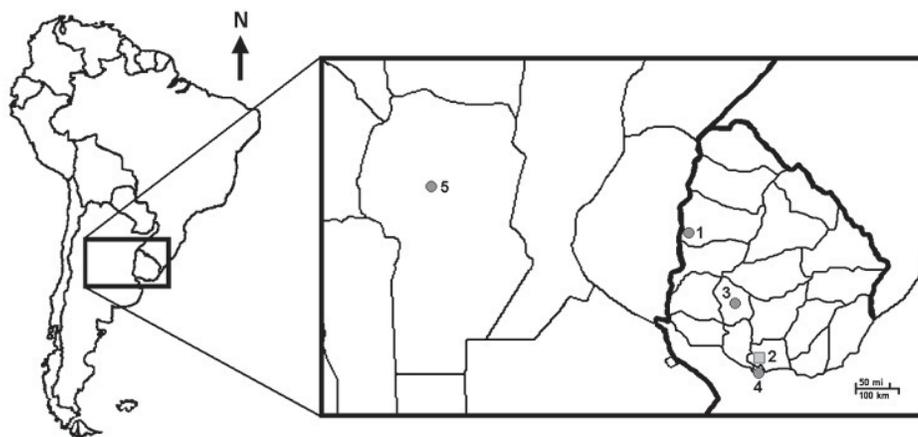


FIGURE 1. Locality records of *Holocnemus plucheii* (circles) and *Spermophora senoculata* in Argentina and Uruguay. Square indicates the presence of both species. Localities: Uruguay: 1) Paysandú, 2) Las Piedras, 3) Trinidad, 4) Montevideo; Argentina: 5) Córdoba.

FIGURA 1. Localidades de ocurrencia de *Holocnemus plucheii* (círculos) y *Spermophora senoculata* en Argentina y Uruguay. El cuadrado indica la presencia de ambas especies. Localidades: Uruguay: 1) Paysandú, 2) Las Piedras, 3) Trinidad, 4) Montevideo; Argentina: 5) Córdoba.

Spermophora senoculata (Dugès, 1836)

For a complete synonymic list, see Platnick (2008)
This species was registered only at one site; it was found near the ceiling inside a house.

New Record: Uruguay. *Canelones*, Las Piedras (34°43'31"S; 56°13'26"W): 21/09/2006, 4 m, 6 f, A. Laborda Col. (FCE-Ar 2444); 13/11/2006, 7 m, 9 f, A. Laborda Col. (FCE-Ar 2445); 19/12/2006, 3 m, 8 f, A. Laborda Col. (FCE-Ar 2446) (Figs. 1, 3).

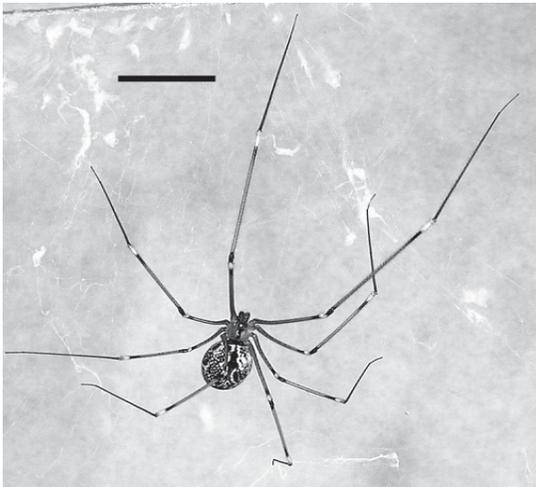


FIGURE 2. Female of *Holocnemus pluchei* hangs in its web. Scale: 10 mm.

FIGURA 2. Hembra de *Holocnemus pluchei* colgando de su tela. Escala: 10 mm.

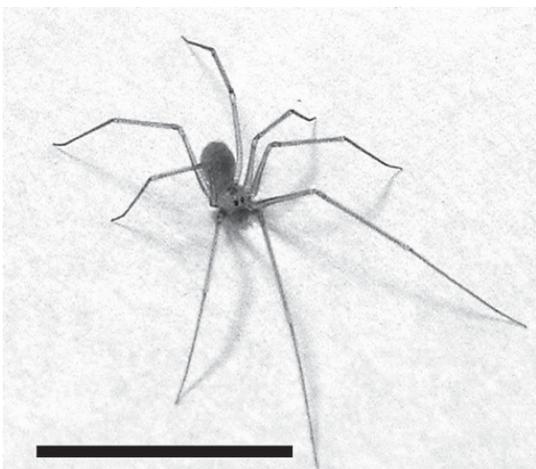


FIGURE 3. Female of *Spermophora senoculata*. Scale: 10 mm.

FIGURA 3. Hembra de *Spermophora senoculata*. Escala: 10 mm.

Holocnemus pluchei was probably introduced into the U.S.A. from Europe, in the second half of twentieth century. Porter and Jakob (1990) indicated that the oldest record of this species for the U.S.A. was from Sutter, California, in 1974. They suggested that the low genetic variability observed in some Californian populations could result from the introduction of a single gravid female into the eastern U.S.A. They considered that it had been accidentally transported by truck and railroad cargo. Thus, the oldest record of *H. pluchei* in South America that we find in collection material, which is from 1967, is not much older than the first known North American record; this fact suggests that the introduction of this species into North and South America could have been more or less contemporaneous. Capocasale & Pereira (2003) indicated that the family Pholcidae was represented in Uruguay by *Pholcus phalangioides* and *Psilochorus bruneocyaneus* Mello-Leitão, the latter with dubious generic placement (Huber 2000). This paper contributes to our knowledge about the Pholcidae in Uruguay and Argentina and gives new records for this family. As in sites in the northern hemisphere, *H. pluchei* in Uruguay was observed to occur in groups of several individuals inside and outside human buildings. Data about the dispersion of *S. senoculata* are scarce, probably due to its small size. This species was observed inside buildings, on the walls, near the ceiling (Fig. 4), with webs separated 10-20 cm. In one case 35 individuals were registered in eight lineal meters.

Kobelt & Nentwig (2008) indicated that the main source of the alien spiders introduced into Europa was the eastern Palearctic Region. They argue that the geographic closeness and the high level of trade connections between these areas could be the main causes promoting the invasions of the spiders. For the La Plata river basin in southern South America it is likely that Europe was the principal source for biological invasions due to the intensive ship movements between both areas during the nineteenth and twentieth centuries. The introduction of *Phoneutria* species (Ctenidae) from Brazil by terrestrial transport was reported for Uruguay and Argentina (Simó 1984; Simó & Brescovit 2001). In the La Plata basin, regional connections have been increasing. Taking into account the similar weather conditions and the reduced time

for “hitchhiking”, the likelihood of establishment of a viable population in foreign habitats is increasing. Considering these facts and the affinity to live in urban environments, we predict that new

records of *H. pluchei* and *S. senoculata* in South America will be found, expanding the known distributions of both species.



FIGURE 4. Female of *Spermophora senoculata*. The circle indicates the presence of the juvenile exuvia in the web and the cocoon (see arrow).

FIGURA 4. Hembra de *Spermophora senoculata*. El círculo indica la presencia de mudas de juveniles en la tela y la ooteca (ver flecha).

ACKNOWLEDGEMENTS

To Bernhard Huber, Ewerton Machado, Anita Aisenberg, Alfredo Peretti, Martín Ramírez, Antonio Brescovit and one anonymous reviewer for their useful comments and help.

BIBLIOGRAPHY

- CAPOCASALE R. M. & A. PEREIRA. 2003. Diversidad de la biota uruguaya. Araneae. Anales Museo Nacional de Historia Natural y Antropología (2ª Serie) 10(5):1-32.
- HUBER, B. A. 2000. New world pholcid spiders (Araneae: Pholcidae). A revision at generic level. Bulletin of the American Museum of Natural History, New York. 254: 1-348.
- HUBER, B. A. 2002. Functional Morphology of the Genitalia in the Spider *Spermophora senoculata* (Pholcidae, Araneae). Zoologischer Anzeiger, 241:105-116.
- HUBER, B. A. 2005. Revision of the genus *Spermophora* Hentz in Southeast Asia and on the Pacific Islands, with descriptions of three new genera (Araneae: Pholcidae). Zoologische Mededelingen. 79-2(4): 61-172.
- JAKOB, E. M. 1989. Costs and benefits of group living in a pholcid spider (*Holocnemus pluchei*). PhD Thesis, University of California at Davis, Davis, California. 88 pp.
- JAKOB, E.M. 1991. Costs and benefits of group living for pholcid spiders: losing food, saving silk. Animal Behaviour 41:711-722.
- JAKOB, E. M. 1994. Contests over prey by group-living pholcids (*Holocnemus pluchei*). Journal of Arachnology 22:39-45.
- LEVI, H. W. & J. CODDINGTON. 1991. Sytematics and

- evolution of spiders (Araneae). *Annual Review of Ecology and Systematics* 22: 565-92.
- KOBELT, M. & W. NENTWIG. 2008. Alien spider introductions to Europe supported by global trade. *Diversity and Distributions* 14(2): 273-280.
- PLATNICK, N. I. 2008. The world spider catalog, version 8.5. American Museum of Natural History, New York. (Accessed: September 15, 2008). <http://research.amnh.org/entomology/spiders/catalog/index.html>
- PORTER, A. H. & E.M. JAKOB. 1990. Allozyme variation in the introduced spider, *Holocnemus pluchei* (Araneae, Pholcidae) in California. *Journal of Arachnology* 8: 313-319.
- SIMÓ, M. 1984. Nota breve sobre la introducción al Uruguay de la araña del banano *Phoneutria nigriventer* Keyserling 1881 y de *Phoneutria keyserlingi* (Pickard-Cambridge, 1897) (Araneae, Ctenidae). *Aracnologia (Suplemento)* 4: 1-4.
- SIMÓ, M. & A.D. BRESCOVIT. 2001. Revision and cladistical analysis of the neotropical genus *Phoneutria* (Araneae, Ctenidae), with notes on the related Cteninae. *Bulletin of the British Arachnological Society* 12(2): 67-82.

Recibido: 19.08.08
Aceptado: 21.09.08