Revista Ibérica de Aracnología, nº **29** (31/12/2016): 83–85.
Grupo Ibérico de Aracnología (S.E.A.). ISSN: 1576 - 9518.

The spider genus *Steatoda* Sundevall, 1833 (Araneae: Theridiidae) in the State of North Dakota (USA)

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Abstract: A checklist for the species in the spider genus *Steatoda* occurring in the State of North Dakota (USA) is presented. *Steatoda albomaculata* and *Steatoda triangulosa* are recorded for the first time from the State. New county records are provided for *Steatoda borealis*, a key to the three species present in North Dakota is proposed and the new records are commented upon and discussed.
Key words: Araneae, Theridiidae, *Steatoda*, checklist, faunistics, new records, North Dakota, USA.

El género *Steatoda* Sundevall, 1833 (Araneae: Theridiidae) en el estado de Dakota del Norte (Estados Unidos)
Resumen: Se presenta una lista de las especies del género *Steatoda* del estado de Dakota del Norte (EE.UU.). Se registran por primera vez para el estado *Steatoda albomaculata* y *Steatoda triangulosa*, mientras que se aportan nuevos registros de condado para *Steatoda borealis*. Se provee una clave para las tres especies presentes en Dakota del Norte y los nuevos registros son comentados y discutidos.
Palabras clave: Araneae, Theridiidae, *Steatoda*, lista, faunística, nuevos registros, Dakota del Norte, EE.UU.

Introduction

Steatoda Sundevall, 1833 is a spider genus worldwide distributed, containing nearly 120 species (World Spider Catalog, 2016). Spiders on this genus are characterized by brown to dark brown coloration, an ivory strip on the anterior portion of the abdomen, and fleshy colulus (Levi, 1957). Members of *Steatoda* are usually referred as false widows because of its resemblance with the true widow spiders in the genus *Latrodectus* Walckenaer, 1805; from which can be differentiated by the presence of cheliceral teeth (Levi, 1967). This resemblance raised several myths and misconceptions about their bites (Faúndez & Téllez, 2016b). However, although the steatodism (i.e. bites of spiders in the genus *Steatoda*) is similar to latrodectism (i.e. bites of spiders in the genus *Latrodectus*), it is considerably less severe (Isbister & White, 2004).

In North America this genus has been treated by Levi (1957, 1962), providing most of the data known for the United States. Although *Steatoda* species are very common in the country, there is little information about the false widows in the state of North Dakota. The purpose of this contribution is to provide new records, a checklist and a key to the species of *Steatoda* present in the state.

Materials and methods

In morphology, terminology and identification we follow Levi (1957). For nomenclature we follow the World Spider Catalog (2016). Photos were taken with a digital camera adapted to a stereoscopic microscope. Collections cited in the text are the following:

NDSIRC: North Dakota State Insect Reference Collection, North Dakota State University, Fargo, ND, USA.

DZCC: Departamento de Zoología médica y sanitaria, Centro de Estudios en Biodiversidad, Punta Arenas, Chile.

Results and discussion

Steatoda Sundevall, 1833

TYPE SPECIES: *Theridion 4-punctatum* Linnaeus, 1758, by original designation.

● *Steatoda albomaculata* (De Geer, 1778) (Fig. 1)
(Orig. Comb. *Aranea albo-maculata* De Geer, 1778)
= *Aranea albolunulata* Panzar, 1804
= *Theridion maculatum* Walckenaer, 1805
= *Theridion dispar* Sundevall, 1831
= *Theridion anchorum* Hahn, 1836
= *Eucharia corollata* C. L. Koch, 1837
= *Asagena amurica* Strand, 1907

This species is cosmopolitan (World Spider Catalog, 2016). In the United States it is widely distributed (Levi, 1957); however, it has never been recorded from North Dakota.

MATERIAL EXAMINED: UNITED STATES, North Dakota, McKenzie Co. 24-VI-1964, R. J. Sauer leg. 1♂ [NDSIRC].

REMARKS: Although this species has not been previously recorded in the state, its presence is not rare. It has been recorded in all the three surrounding US states (e.g. Minnesota, Montana and South Dakota) and Southern Canada (Levi, 1957). It is probably widespread across ND, but there is few data because of the lack of collecting.

● *Steatoda borealis* (Hentz, 1850) (Fig. 2)
(Orig. comb. *Theridion boreale* Hentz, 1850)

This species is known from the United States and Canada (World Spider Catalog, 2016). In North Dakota it has been recorded for Divide Co. and Cass Co. (Levi, 1957).

MATERIAL EXAMINED: UNITED STATES, North Dakota: Burleigh Co., Bismark along Missouri River, 14-VII-1964, R.J. Sauer leg. 1♂ [NDSIRC]; Cass Co., Fargo, North Dakota State University (NDSU), 6-IX-1966, R.G. Helgeson leg. 1♀ [NDSIRC]; Cass Co. Fargo, NDSU, 8-IX-1966, R. J. Sauer leg. 1♂ [NDSIRC]; Cass Co., Fargo, VIII-1969, R. C. Tetrault leg. 1♀ [NDSIRC]; Cass Co. 6-XII-1965, R. J. Sauer leg. ♀ [NDSIRC]; Grand Forks Co. Inkster Spring, 13-VII-1964, R. J. Sauer leg. 1♂ [NDSIRC]; Grand Forks Co. 6-IX-1940, H.S. Telford leg. 3♀♀ 1♂ 3 juvenile [DZCC]; McKenzie Co. 24-VI-1964, R. J. Sauer leg. 1♀ 2 juvenile [NDSIRC]; Pembina Co. Leyden, 3-VIII-1961, R. L. Post leg. 1♂ [NDSIRC]; Steele Co. 26-IX-1964, W. Colberg leg. 1♂ [NDSIRC]. Minnesota: Clay Co. 16-X-1964, under dead trees, R. J. Sauer leg. 1♂1♀ [DZCC].

REMARKS: This is the only previously recorded species of *Steatoda* in the state. The new records here provided fill the white spaces within ND. It is recorded for the first time in the counties of Burleigh, Grand Forks, Pembina and Steel.

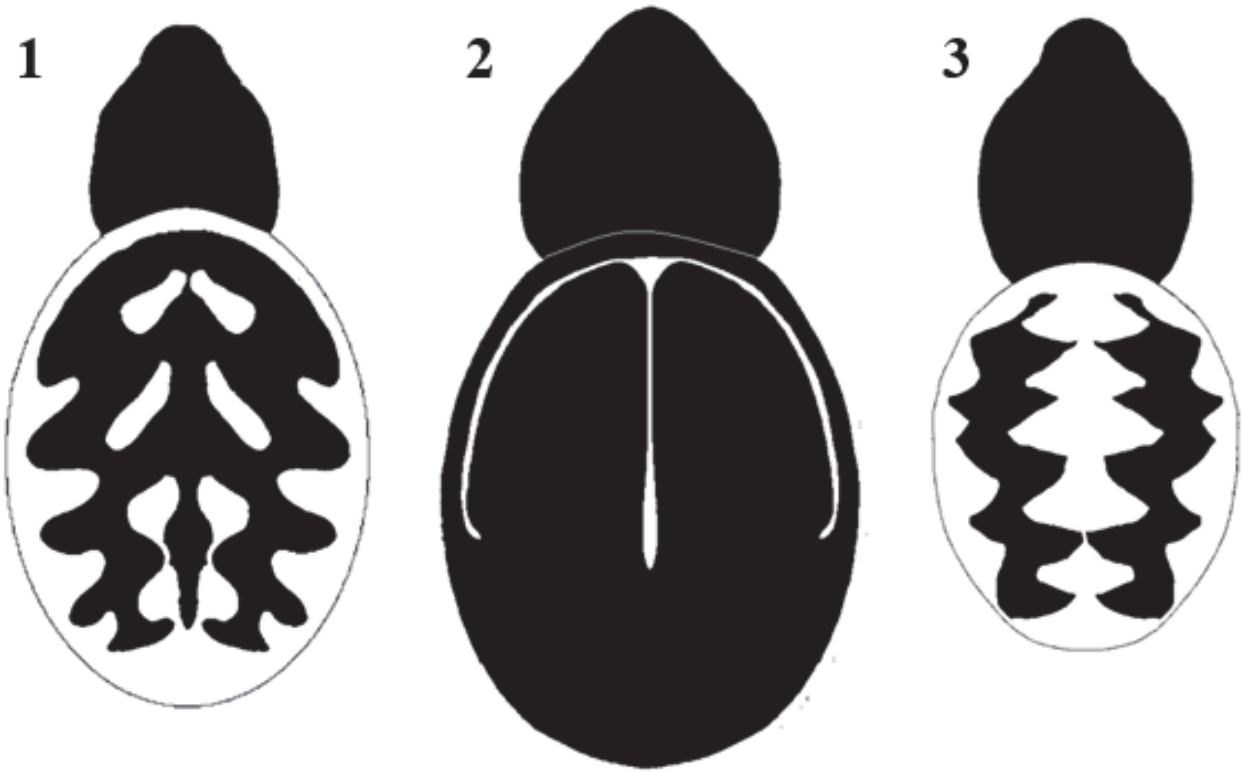


Fig. 1. *Steatoda albomaculata*, dorsal pattern; **Fig. 2.** *Steatoda borealis*, dorsal pattern; **Fig. 3.** *Steatoda triangulosa*, dorsal pattern.



Fig. 4. *Steatoda triangulosa*, adult female grouping preys.

● *Steatoda triangulosa* (Walckenaer, 1802) (Figs. 3, 4)
(Orig. Comb. *Aranea triangulosa* Walckenaer, 1802)
= *Theridion triangulifer* Walckenaer, 1802
= *Theridium venustissimum* C. L. Koch, 1838
= *Theridion punicum* Lucas, 1846
= *Theridion flavo-maculatum* Lucas, 1846
= *Theridion serpentinum* Hentz, 1850
= *Theridion sayiori* Fox, 1940
= *Teutana lugubris* Schenkel, 1963

This species is cosmopolitan and synanthropic (Levi 1967). It has a wide distribution across the US except in the northern states (Levi, 1957; 1967).

MATERIAL EXAMINED: UNITES STATES, North Dakota: Cass Co. Fargo, 8-VIII-2016, M. A. Carvajal leg. 1♀ [NDSIRC]; Cass Co. Fargo, 9-VIII-2016, E. I. Faúndez leg. 1♀ [DZCC]; Cass Co. Fargo, 12/17-VIII-2016, M. A. Carvajal leg. 3♀♀1♂ 4 Juvenile [DZCC]; Cass Co. Fargo, NDSU, 28-VIII-2016, E. I. Faúndez leg. 1♂ [NDSIRC]; Cass Co. Fargo, 29-VIII-2016, M. A. Carvajal leg. 1♂ [DZCC]; Cass Co. Fargo, 5- IX-2016, M. A. Carvajal leg. 1♂ [DZCC]; Cass Co. Fargo, 8-IX-2016, M. A. Carvajal leg. 1♀ [DZCC]; Cass Co. Fargo, 11- IX-2016, M. A. Carvajal leg. 1♀ [DZCC].

REMARKS: Specimens have been collected associated to human buildings. There are no previous records for the state neither in the literature or collections. Therefore, we believe it has been recently arrived to the area. It has been found feeding on a diverse amount of preys (even grouping different preys together, fig. 4). On the nets we have identified specimens of *Harmonya axyridis* Pallas, 1773, and *Adalia bipunctata* (Linnaeus, 1758) (Coleoptera: Coccinellidae); *Nabis americoferus* Carayon, 1961 (Heteroptera: Nabidae), several unidentified species of Chrysopidae (Neuroptera), Culicidae (Diptera), Muscidae (Diptera) Formicidae (Hymenoptera) and several other Coleoptera. Also females have been found feeding on the agelenid spider *Tegenaria domestica* (Clerck, 1757) which seems to be displaced from homes by *S. triangulosa*.

Key to the species of *Steatoda* present in North Dakota:

1 Abdomen mostly blackish or brownish with only a median stripe ivory colored (Fig. 2) ..... *Steatoda borealis*

1' Abdomen with large ivory areas and acute designs (Fig. 1 and 3) **2**

2 Abdomen with a wide rhomboidal ivory pattern across the midline (Fig. 3)..... *Steatoda triangulosa*

2' Abdomen with bilateral pattern of ivory spots and without an ivory stripe across the midline (Fig. 1) .... *Steatoda albomaculata*

The genus *Steatoda* is represented in the State of North Dakota by three species. All of these three may be found in homes; however, actually only *S. triangulosa* has been found in human buildings. *Steatoda borealis* seems to be the most common species in the field; however, *S. albomaculata* may be also common but more collecting efforts are needed. The arrival of *S. triangulosa* is unclear; however, it appears to be recent. Up to this point all the specimens have been found in the north side of Fargo, near to the airport and North Dakota State University; both places with high human traffic/exchange. Regarding of the medical significance of this genus in the state, only one species, *S. triangulosa* has been reported biting humans in France (Pommier *et al.,* 2006). The synanthropic habits of this species is a factor that may help to the occurrence of bites, as occurred with other synanthropic species of *Steatoda* (Faúndez & Téllez, 2016a). Although there are not bite reports for *S. borealis* and *S. albomaculata*, it may be inferred that these can produce a similar effect because of their generic relationships (Faúndez, 2009). However as to this point these are more common in the field in North Dakota, the possibilities of an accident are less compared to *S. triangulosa*. On the other hand, the presence of *S. triangulosa* in homes of North Dakota may diminish the population of some nuisance species like *Harmonia axyridis*, ants and/or *Nabis americoferus* which has been recorded to bite humans in ND (Faúndez, 2016). The growing of the state plus improvement in human buildings can help future arrivals of additional synanthropic species of *Steatoda*. This situation requires attention especially with *Steatoda grossa* (C. L. Koch, 1838) and *Steatoda nobilis* (Thorell, 1875) which are currently experiencing fast expansion worldwide, even reaching high latitudes (Faúndez & Téllez, 2016b; Faúndez, 2007). Thus surveillance in both domestic and rural environments should be incremented in order to improve the knowledge of this genus in the area.

Acknowledgement

We thank Fernando Téllez for his suggestions that helped to improve the figures.

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