Synanthropic is best: Nuctenea umbratica (Araneae: Araneidae) and Steatoda bipunctata (Araneae: Theridiidae) are the European Spiders of the Years 2017 and 2018

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Synanthropic is best: *Nuctenea umbratica* (Araneae: Araneidae) and *Steatoda bipunctata* (Araneae: Theridiidae) are the European Spiders of the Years 2017 and 2018

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Abstract. The European spiders of the year 2017, *Nuctenea umbratica* (Clerck, 1757), and 2018, *Steatoda bipunctata* (Linnaeus, 1758), are presented. Both species were originally bark-dwellers, but became more and more synanthropic. Their appearance and characteristics (e.g., ecology, habitat, phenology) are briefly described. The modality of the voting is given as well as the decisive criteria for the win.

Keywords: bark-dweller, Europe, popular, Rabbit Hutch Spider, synanthropic, Walnut Orb-weaver Spider

Zusammenfassung. Am liebsten im Haus: *Nuctenea umbratica* (Araneae, Araneidae) und *Steatoda bipunctata* (Araneae: Theridiidae) sind die europäischen Spinnen des Jahres 2017 und 2018. Die europäischen Spinnen des Jahres 2017, *Nuctenea umbratica* (Clerck, 1757), und 2018, *Steatoda bipunctata* (Linnaeus, 1758), werden vorgestellt. Beide Arten sind ursprünglich Rindenbewohner, wurden aber mehr und mehr zu Kulturfolgern. Ihre Merkmale und Eigenschaften (z.B. Ökologie, Lebensraum, Phänologie) werden kurz beschrieben. Der Wahlmodus sowie die für die Wahl entscheidenden Kriterien werden genannt.

Synanthropic spiders – sometimes just called 'house spiders' – are feared and loved at the same time. However, this is perfect for a spider of the year! After *Pholcus phalangioides* (Fuesslin, 1775) in 2003, *Salticus scenicus* (Clerck, 1757) in 2005 and *Eratigena atrica* (C.L. Koch, 1843) in 2008 (Kreuels & Jäger 2003, Jäger & Kreuels 2005, Jäger 2007), two more similar species were elected. Both of them took advantage of new microhabitats available in homes and around houses in urbanized areas and were able to settle into human dwellings (Sacher 1983, Reinke 1997, Jocqué et al. 2016). Moreover, they share another habit: they are also bark-dwellers (Wunderlich 1982, Koponen 1996, Horváth & Szinetár 2002, Szinetár & Horváth 2006, Machač & Tuf 2016). This means looking under the bark of trees near houses may reveal a spider of the year!

Election of the European Spider of the Year (ESY)

The European Spider of the Year was chosen by 81 (2017) respectively 83 (2018) arachnologists from 26 European countries (Albania, Austria, Belgium, Bulgaria, Croatia, Czechia, Denmark, Finland, France, Germany, Great Britain, Hungary, Ireland, Italy, Liechtenstein, Macedonia, The Netherlands, Norway, Poland, Portugal, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland). Co-ordination is via the Natural History Museum Vienna together with the "Arachnologische Gesellschaft" (AraGes) and the European Society of Arachnology (ESA). It is a simple email vote: voting members choose their favourite spider out of six proposed species (partly genera). A majority wins!

Through choosing the Spider of the Year we not only hope that this less popular group of animals will be brought to the fore, but we also hope that researchers can obtain new data about its current distribution. In this context, enjoy the Spider of the Year and help us with your locality records via photographic documentation of this species.

There are many societies supporting the Spider of the Year (see European Society of Arachnology 2018). Furthermore, every arachnologist is asked for support using those spider species as a 'model' to promote spiders in general (for more details see Hörweg et al. 2015).

Nuctenea umbratica (Clerck, 1757)/Walnut Orb-weaver/ Spaltenkreuzspinne/épeire des fissures – Spider of the Year 2017

Nuctenea umbratica belongs to the family of true orb-weavers (Araneidae). This family has 3135 species worldwide, 100 of which are found in Europe (World Spider Catalog 2018, Nentwig et al. 2018). The genus *Nuctenea* is represented by two species in (Central) Europe (Blick et al. 2004, Nentwig et al. 2018).

The orb weaver *N. umbratica* shows a high level of sexual dimorphism: female body length is 13–16 mm, males just 7–10 mm. The body is wide and flattened. The basic colouration is red-brown to black-brown, the legs are dark brown and the opisthosoma shows a dark, leaf-like pattern (foliation) (Figs. 1–2) which can have a light border (Reichholf & Steinbach 1997, Bellmann 2016, Nentwig et al. 2018).

Nuctenea umbratica builds a relatively large orb web (up to 70 cm in diameter) with an eccentric form in which the hub of the web is always displaced towards the spider's retreat (Bellmann 2016). The spider spends the day hidden in this retreat and sits in the middle of the web when it gets dark at night. *Nuctenea umbratica* can be found the whole year round, but mostly from July to October (Wiehle 1931, Sacher 1983, Nentwig et al. 2018). It feeds like other orb weavers mainly on flies, moths, but also winged aphids; many of which are agricultural pests (Nyffeler 1983). The spider itself is regularly preyed upon by the sphecid wasp *Sceliphron curvatum* (Smith, 1870) (Gepp 1995).

Nuctenea umbratica is found throughout Europe (Blick et al. 2004, Nentwig et al. 2018). Its vertical distribution is predominantly from flatlands to low hills (up to about 800 metres above sea level), with only a few records at higher elevations up to 1500 metres in places like Tyrol (Wiehle 1931, Hänggi et al. 1995, Steinberger & Thaler 1990, Thaler & Knoflach 2003). The species occupies various habitats. It was originally a bark-associated species (Wunderlich 1982, Balkenhol & Zucchi 1989, Steinberger & Thaler 1990, Szinetár & Horváth 2006, Machač & Tuf 2016) (Fig. 3), particularly found on dead standing wood with loose bark, but is now also found in urban environments like house walls and fences, especially

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in nooks and crevices (Komposch 1993) (Fig. 4). In some habitats it can be encountered quite frequently and in Central Europe the species is categorised as not threatened (Řezáč et al. 2015, Blick et al. 2016). The known distribution in Europe can be found in specific distribution maps (Helsdingen 2017, Arachnologische Gesellschaft 2018, CSCF 2018, Czech Arachnological Society 2018, European Society of Arachnology 2018, MNHN 2018).

Nuctenea umbratica can be mistaken for dark animals like *Larinioides ixobolus* (Thorell, 1873), but for comparison this species is a metallic black and the foliation is lighter and more prominent. Juveniles of *N. umbratica* resemble the smaller (body length up to 9 mm), but much rarer, *Nuctenea silviculatrix* (C.L. Koch, 1835). This species is distributed more to the east and differs by having lighter sides of the body and a more rounded opisthosoma (Nentwig et al. 2018, Wiki AraGes 2018).

Nuctenea umbratica was chosen as the European Spider of the Year because (1) the species is quite common, (2) despite its hidden way of life it is easy to find close to houses, (3) it is a quite prominent and easy to identify species, and (4) it raises public awareness about its original habitat on the bark of dead wood and/or old trees.

Steatoda bipunctata (Linnaeus, 1758)/Rabbit Hutch Spider/ Fettspinne/stéatode à deux points – Spider of the year 2018

Steatoda bipunctata belongs to the cobweb spider family (= comb-footed spiders, Theridiidae). Worldwide, this family has 2487 species of which 228 live in Europe (Nentwig et al. 2018, World Spider Catalog 2018). The genus *Steatoda* is represented by 13 species in Europe, six of which can be found in Central Europe (Blick et al. 2004, Nentwig et al. 2018).

The body length is 4.5–7 mm in females and 4–5.5 mm in males. The body appears greasy or waxy and shiny, especially the slightly flattened opisthosoma. In German it is called "Fettspinne" (Fat or Greasy Spider). The basic colour of the prosoma is brown to almost black, the opisthosoma is generally light brown becoming dark brown to black towards the edges. A rather indistinct lighter stripe runs down the middle of the opisthosoma, as well as a wide pale band across the front (Fig. 5). Usually four small dark dots can be seen (these mark the points where muscles attach inside the body). The

Fig. 2: *Nuctenea umbratica* within its web (photo: Christian Komposch, Ökoteam Graz)
Abb. 2: *Nuctenea umbratica* im Netz (Foto: Christian Komposch, Ökoteam Graz)

Fig. 3: Natural habitat of *Nuctenea umbratica* on tree bark (photo: Gilbert Loos, ARABEL)
Abb. 3: Natürlicher Lebensraum von *Nuctenea umbratica* auf einer Baumrinde (Foto: Gilbert Loos, ARABEL)

Fig. 1: *Nuctenea umbratica* – habitus male (photo: Christian Komposch, Ökoteam Graz)
Abb. 1: *Nuctenea umbratica* – Habitus Männchen (Foto: Christian Komposch, Ökoteam Graz)

Fig. 4: Artificial habitat of *Nuctenea umbratica* in wall crevices (photo: Johan Van Hoecke, ARABEL)
Abb. 4: Künstlicher Lebensraum von *Nuctenea umbratica* in Mauerspalten (Foto: Johan Van Hoecke, ARABEL)

Fig. 5: *Steatoda bipunctata* – habitus (photo: Pierre Oger, ARABEL)
Abb. 5: *Steatoda bipunctata* – Habitus (Foto: Pierre Oger, ARABEL)

Fig. 6: *Steatoda bipunctata* within the web (photo: Cor Kuijpers, ARABEL)
Abb. 6: *Steatoda bipunctata* im Netz (Foto: Cor Kuijpers, ARABEL)

Fig. 7: *Steatoda bipunctata* with eggs (photo: Stefan Sollfors, eurospiders.com)
Abb. 7: *Steatoda bipunctata* mit Eiern (Foto: Stefan Sollfors, eurospiders.com)

legs are red-brown with darker rings (Reichholf & Steinbach 1997, Bellmann 2016, Bee et al. 2017, Nentwig et al. 2018).

Steatoda bipunctata builds a three-dimensional web – usually in corners or niches – with a more or less thickly spun sheet with upwards and sideward directed threads to fix the net (Fig. 6). The catching threads are directed downwards. Only these have glue droplets, which are located at the bottom of the thread. Prey items become stuck here, and the spider hurries out of its retreat; usually a crevice near the web (Foelix 2015). *Steatoda bipunctata* can overpower not only small insects but even large spiders like the house spider.

Steatoda bipunctata can be found all year round, however males are usually encountered during the mating season from June to October (Schaefer 1976). During mating the male makes chirping noises: the sounds are produced by pulling a sharp ridge at the front of the opisthosoma across a file-like 'stridulatory organ' at the back of the prosoma (Gwinner-Hanke 1970, Foelix 2015). In this way the female is enticed out of her retreat and mating can be completed. The female lays about 50–150 pink coloured eggs in a white egg sac which is hung within the web (Nielsen 1932, Bellmann 2016) (Fig. 7).

Steatoda bipunctata is found in all European countries. Its vertical distribution is mostly from lowlands to low mountain ranges (up to about 800 m above sea level), although there are records up to 2000 m in the Alps (Wiehle 1937, Steiner & Thaler 2004).

As a web-builder the species is mostly found in or on buildings, for example under window ledges or near front doors that stand back a little bit. *Steatoda bipunctata* can even survive in quite dry rooms (Reichholf & Steinbach 1997). As the name implies, rabbit hutches often make a suitable habitat as well. However, they are also found outdoors, mostly in gardens, on bushes and in forests – especially under tree bark – in rock crevices or under stones (Szinetár & Horváth 2006, Machač & Tuf 2016). In places they can be quite common and the species is not regarded as endangered (Řezáč et al. 2015, Blick et al. 2016). The known distribution in Europe can be found in specific distribution maps (Helsdingen 2017, Arachnologische Gesellschaft 2018, CSCF 2018, Czech Arachnological Society 2018, European Society of Arachnology 2018, MNHN 2018).

Steatoda bipunctata can be mistaken for *Steatoda castanea* (Clerck, 1757), a species which lives in similar habitats but which mostly has a lighter colouration and is only found in spring (Nentwig et al. 2018, Wiki AraGes 2018).

Steatoda bipunctata was chosen as the European Spider of the Year because this species is commonly found in houses and is relatively easy to recognize. Furthermore, it is an example of a cobweb spider which is not dangerous, unlike the widow spiders from the Mediterranean which are venomous to people and which are rightly feared and regularly mentioned in the popular media; the chirping of the males is another peculiarity of the species.

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