

THE GREEN-JAWED TUBE SPIDER *SEGESTRIA FLORENTINA* (ROSSI) (ARANEAE: SEGESTRIIDAE) IS ESTABLISHED IN IRELAND

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Abstract

Segestria florentina (Rossi) was previously recorded from Ireland only as a single specimen found in association with imported bananas. The species has been treated since then as a non-established introduction. A large, seemingly localised population of the spider has been found in a suburban area of Limerick city and the species can now be added to the list of established Irish spiders. The spider has been known to, very occasionally, inflict defensive bites and, while the effects thereof are generally mild, its venom is thus of medical and biological interest. It is a large and robust animal and bites are usually physically painful rather than causing a symptomatic reaction. The neurotoxin can very occasionally lead to more persistent symptoms in individuals and in combination with the spider's large size and dramatic feeding behaviour, this has incited some rather sensational headlines in media outlets.

Key words: *Segestria florentina*, Segestriidae, established in Ireland, Limerick, urban, synanthropic, houses, walls, venom, bite, media.

Introduction

The first Irish record of *Segestria florentina* (Rossi, 1790) was from *circa* September 2005 when a single female specimen was collected from a box of bananas in a retail store in Dublin city (Nolan, 2008). It was possible to establish the route the shipment of fruit had taken from point of origin in South America, through the port of Foynes, County Limerick and to a storage facility in County Dublin. It was not possible to ascertain at which point the spider may have entered the box of bananas, so the species was noted as a non-established introduction (Nolan, 2008). On the 8 August 2022, MN was contacted by JD who thought that some spiders found in the vicinity of their house in July 2022 might be specimens of *S. florentina*. An image of a desiccated specimen found indoors, sent to the senior author on the 14 August 2022 clearly showed the chelicerae to have a green colouration and thus *S. florentina* was almost certainly

involved. MN then proposed to visit the location in August 2022 in order to try and collect some adult specimens.

Records

LIMERICK: Dooradoyle, Limerick, County Limerick (Irish grid reference R5653). Up to the 30 August 2022 specimens were observed and/or collected by JD: in late June a web was noticed on a wall in a large hole immediately adjacent to a front-door bell; a large occupying spider was occasionally observed and this was later identified as *Segestria florentina*. At the end of July, the desiccated husk of an immature specimen was seen on the back of a curtain at a patio door. This was the first specimen (noted above) on which the green chelicerae were observed. One immature, seen at the end of July in the house, was collected and photographed. Three small immatures, *circa* 14 August, were noted moving around on the walls and window-frames of the house in the evening. One immature, mid-August (possibly 17th), also in the house, was collected and kept alive (taken for microscope examination and preservation by MN on 31 August).

31 August 2022 (specimens observed and collected by JD and MN); numerous (>20) webs seen on the house and garden walls of a single domicile, about 10 of which (the most accessible) were examined. A number seemed to have no occupant. One adult ♀ and one immature specimen enticed from their retreat by dragging a cable-tie across the radii of the emergent web. Two adults ♀♀ were pushed from the retreat onto the platform of radii surrounding the mouth by inserting a cable-tie through a retreat from behind. The large specimen at the doorbell was seen again but could not be extricated.

Webs were established in various locations on the outside surface of the house: behind metal struts fixed flat against a wall (mortar pointing providing a concave recess behind the strut where webs could be established), in cavities in mortar, at the meeting point of an eave and wall, within the structure of an aluminium sliding door, under a wooden window-frame, in gaps between wooden planks of a door etc. In JD's experience of 'fishing' for specimens, when some webs were revisited, they were occasionally found to be no longer occupied, suggesting specimens were relocating with some frequency.

Identification, webs and habits

Segestria florentina is a large spider with adult female specimens sometimes attaining 22mm in length. The largest specimen collected in Limerick measured 15mm (17.5mm including the prognathous jaws) (Plate 1). With the legs out-stretched specimens can easily exceed 40mm in length from claws of leg I to claws of leg IV. The first two pairs of legs are long and very robust – far more so than legs III and IV – and this gives the spider a rather imposing appearance when

it shows itself at the mouth of its webs. It can emerge with great rapidity and provoke a startled response (possibly terrifying in the unsuspected) even in the experienced arachnologist (Moore, 2003), something to which I can attest. The legs and abdomen are very dark in adult specimens and immatures can be slightly paler. In contrast *S. senoculata* (L.), the only other segestriid spider found in Ireland, usually has a clear, dark foliate pattern on its pale abdomen (Plate 1). The webs of *Segestria* species are distinctive and are usually set into a hole or deep recess in the form of silken tubes. A series of lines of silk are constructed radiating from the mouth of the web like spokes on a wheel (Plate 2). These can be quite faint against a pale surface and in the few observations noted here seemed to be less frequently as regularly constructed than in *S. senoculata* (Plate 2). Observations show that *S. florentina* builds a tube which is curled back on itself with the spider remaining in the rebated section during the day (Chase, 1965).

It can be difficult to perceive the green sheen of the chelicerae unless in bright sunlight and even if persuaded to the web's mouth the spider tends to retreat into its roost very quickly if prey is not detected. A close-up photograph of a trapped specimen seems to pick up the green sheen even in relatively dull conditions. The spider is most frequently seen sitting at the web-mouth at night and careful deployment of a mobile phone with flash or in conjunction with torch-light might capture the colour of the jaws which are diagnostic of the species.

If the spider leaves the area of the retreat it runs around very rapidly, in a panicked manner, looking for another bolt-hole. This was the experience while collecting specimens on the 31 August and they can be difficult to catch in this circumstance. A specimen was noted to 'jump' from its web's mouth when there was no possibility of retreating (Moore, 2003). Moore (1976) notes how the spider's agitation (which could be perceived as aggression) seems to persist for some time after capture.

The spider is a generalist predator, taking most prey available, however it seems to completely avoid woodlice (Chase, 1965). A prey animal usually signals its presence by walking across the radial lines of the web; the spider sprints out, grabs and bites the animal and drags it back into the retreat with great rapidity. A slightly widened section in the main tube serves as a feeding area and the spider carefully discards all food remnants, dropping them from the mouth of the web (Chase, 1965). A population of the spider that shared a porous wall with a species of solitary bee was studied and their highly active 'hunting' technique characterised (Walters, 2016) with some specimens emerging fully from the web to chase nearby bees. It is possible they could detect the vibrations of the wings through the web trip-lines – a tuning-fork has been recommended by some as a tool to entice the species out. Cooke (1962) and Chase (1965) offer advice on keeping the species in captivity.

Distribution

Segestria florentina is a thermophilous spider with a distribution largely confined to the Mediterranean basin, North Africa, the Levant and more western parts of the Middle-East. In some of these areas it is very common. While in some parts of Europe it is found in natural habitats e.g. on tree trunks under bark, under stones and shingle and in dry grasslands (Nentwig *et al.*, 2022), its most usual habitat in northern Europe seems to be holes and crevices in walls in synanthropic situations (Braunstein, 1994; Braud, 2007; Spider Recording Scheme, 2022). *S. florentina* has been established in Britain for many years and was characterised as being usually found in port towns in southern England giving rise to the idea that it was being introduced with freight (Locket and Millidge, 1951). It has spread somewhat in the intervening period and in Britain is now known from nearly 100 hectads, the vast majority of these still in the southern third of England and some from inland locations. It has now been recorded from south Wales and even Scotland (Spider Recording Scheme, 2022) and seems to be spreading north albeit slowly.

It appears to be a relatively recent advent to some northern European countries, first spotted in Germany in 1989 (Braunstein, 1994), in Hungary in 2004 (Kovács and Szinetár, 2004) and Serbia in 2007 (Komnenov and Pavićević, 2008). The latter authors note previous records from the Adriatic coast and that the Serbian record was the first inland record in the Balkans. All German records are strongly southern: Neustadt in 1989 from an insolated, dry-stone wall, subsequently in 1991 from a location about 7km north (Braunstein, 1994) and later from a location near Stuttgart after 2010 (Arachnologische Gesellschaft, 2022).

It is now widely distributed across southern Europe and occurs in a number of more northern countries in eastern and Atlantic zone Europe but is thus far absent from Fennoscandia and Baltic countries (Nentwig *et al.*, 2022). Wunderlich questions whether the species' spread may be indicative of climate change, allowing this largely thermophilous species to colonise habitat in increasingly northern latitudes (Wunderlich, 1995), however it does seem to be confined in northern climes to anthropogenic structures, presumably taking advantage of the artificially elevated temperatures.

Venom and bites

There are a small number of records of *Segestria florentina* biting humans. Its venom has been studied and found to contain neurotoxins and insecticide (Usmanov *et al.*, 1985). The effects of the neurotoxin on humans are essentially mild. Biting is so infrequent in the species that it is not mentioned in a number of substantial European websites: Spider Recording Scheme (2022), Nentwig *et al.* (2022) and Arachnologische Gesellschaft (2022). Neither is it alluded to in the recently published *Britain's spiders* (Bee *et al.*, 2017).

Savory recounts an instance of his sister being bitten in 1926 (quoting his sister's note within), "One spider showed vigorous resistance, in the course of which 'it gave my finger a fierce bite and made it quite sore.' The soreness lasted for the rest of the day and it is noteworthy that this particular spider was being harried about and was consciously on the defensive" (Savory, 1928). Chase somewhat misrepresents the event, suggesting the spider was simply aggressive and not acknowledging the bite was quite clearly provoked (Chase, 1965). Hopkins notes that "fellow arachnologists...have been bitten by *S. florentina*" but also that they have been bitten by the common, garden-spider *Araneus diadematus* (Clerck, 1757), which is an utterly harmless animal (Hopkins, 1993). It is a simple truth that the more you handle spiders, the more likely you are to be bitten, possibly by the most unlikely of species.

A summary of European cases of spider bites noted that "pathological reactions have been attributed to...*Segestria florentina*..." (Maretić, 1975) but Maretić expressed uncertainty about the reliability of the data and gave the spider no specific attention in his summary, so its bite had not provoked any particular attention by that time. A more recent account is given of a small number of bites recorded in Italy where the spider is common (Pepe and Caione, 2006 and references therein). The few bites noted provoked mild symptoms lasting a few hours, though in one case a sore arm and mild headache persisted for a week. The authors summarise other noted bites as showing "light local effects, as for example a blushed skin, a swelling in the bitten part" with two cases showing stronger symptoms including a burning sensation, pain and a loss of sensation for a few hours afterwards (Pepe and Caione, 2006). They summarise that "the bite of *S. florentina* is not dangerous for man." Anticipating a possible increase in Serbian populations, Usmanov *et al.* (1985) suggest that the general public should be informed about the spider and advised what to do in the instance of being bitten. In the same paper, the authors note however that the spider is not dangerous to humans.

The spider has however featured several times in newspapers and other media outlets in Britain under rather lurid headlines because it has occasionally inflicted a bite. Despite the more reasonable tone that eventually emerges in these items, it is usually the headlines, leads or first couple of paragraphs that people read and that determines public reaction. It is probably inevitable that if the spider becomes more widespread in Ireland and gains publicity through media outlets, overblown accounts of its potency and threat-level will appear. Attempting to allay these in advance in this note is probably an exercise in futility.

The tone of commentary appearing in some British media outlets has been distinctly lurid. One headline reads "BEWARE: Green fanged spider with painful bite" and the lead and first paragraphs continue in this vein, "A menacing green-fanged spider with a painful bite has been spotted in a wall outside a shop. The 'cannibal' spider is said to have a 'bite like a deep injection' – and their natural habitat are houses." (Harrow Times, 2018; this story appeared in

numerous other outlets including Metro News, 2019). The rest of the item however undergoes a substantial change of tone, with enthusiastic responses from a spider lover who got to photograph the animal and knowledge-based (!!!) information from a local naturalist who offers reassurances that the spider very rarely bites and only if provoked. A more lurid account of a bite by *S. florentina* appears under the banner “Woman's horror after being bitten on forehead by venomous ‘Dracula spider’” in *The Mirror* (20 July 2019). It is not until the fourth paragraph that we are informed “Bites from the spider are often compared to bee stings, and their venom does not have a lasting effect.” And finally, a headline in *The Irish Sun* (17 September 2019) reads “FANGTASTIC Skin-crawling moment terrifying black spider with green fangs emerges from hole in a wall” and the lead paragraph continues in the same vein, “A creepy video has captured the moment a green-fanged cannibal spider emerged from a hole in the wall in Wiltshire.” As with the item from Harrow above, the tone changes quite rapidly to being reassuring and factual. However, the spider is also referred to as the ‘Dracula’ spider later in the item, serving to illustrate how easily negative terminology can travel. Other items along similar lines can be found; *inter alia* Kentonline (2020), Express.co.uk (2016). The latter item suggests the spider is called the ‘Dracula’ spider because it is found in Transylvania. Ho hum!

While there is no point in pretending bites do not occur, most are clearly provoked by humans disturbing the spider. *S. florentina* is a large spider with very sturdy jaws and if sufficiently provoked may well, and quite reasonably, react defensively. Occasionally the bite does provoke more persistent symptoms, however, as with all venoms, this often has more to do with an individual’s body chemistry than the potency of the venom.

Observing the species when collecting them suggested strongly to me that the spider becomes panicked when it feels itself exposed and, in this circumstance, a defensive bite is more probable. In the unlikely event of a bite occurring a rule of thumb is to collect or photograph the offender in order to be sure of what inflicted the bite. It has been long known that many bites are attributed to spiders which very probably had another source (Russell and Gertsch, 1982).

Conclusions

Despite several searches within a few kilometres of the known population no other specimens of *Segestria florentina* have been seen. Given the noted population is relatively large it is unlikely that this is the only one in County Limerick or Ireland more generally. It was noted of British populations in 1951 that they are very local, but where they occur “many specimens are often found together within a small radius, inhabiting holes in walls or living under stones” (Locket and Millidge, 1951) and this distribution pattern seems still to be the case (Spider Recording Scheme, 2022).

It is worth noting how small and innocuous were the entrances to some of the spider’s

retreats. Others were hidden from plain view by being placed low on a wall or obscured by a small protrusion of mortar. It would be very easy to miss the spider's presence in such circumstances.

If the spider comes to establish itself more commonly in Ireland the possibility of bites occurring is fundamentally very remote. The spider is a cryptic and secretive animal that spends most of its life hidden within its retreat. The most likely bite victims will be arachnologists collecting specimens or individuals examining webs in order to record the species. However, because it is a thermophilous species, and in more northern climates clearly prefers synanthropic situations, it will almost certainly remain confined to built-up areas in Ireland, so occasional encounters with an unsuspecting public might be inevitable.

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PLATE 1. Specimens of *Segestria senoculata* (left) and *S. florentina* (right). *S. senoculata*. collected by Myles Nolan, Killarney National Park, County Kerry, from a yew (*Taxus* trunk), 18 September 1999. Note the clear abdominal pattern in *S. senoculata*. The specimen of *S. florentina* = 17.5mm including the chelicerae. Photograph: Myles Nolan.



PLATE 2. Typical web of *Segestria senoculata* showing the distinctively arranged radiating trip-lines. Glinny, Riverstick, County Cork, 13 June 2006. The web of *S. florentina* can often be less regularly formed. Photograph: Myles Nolan.