

## Further observations on *Nigma walkenaeri*

Jean Young.

My study of small green *Nigma walckenaeri* spiders in 2015 on an old stone wall covered in ivy (as documented in Young 2015) proved to be a fascinating introduction to the world of arachnology, but left me with many unanswered questions. Fortunately the planned restoration of the wall, which will involve the removal of the ivy has been postponed, so I have been able to continue my observations there, and at a new hotspot discovered nearby throughout 2016. Although the spiders were still abundant on the wall numbers didn't seem to be quite as high as in the previous year.

As the majority of references I have come across relating to these spiders suggest that they are generally encountered from late summer through to the start of the New Year I thought I'd check my extensive collection of photos as I suspected I'd seen them throughout the year. I found that I've seen adult females in every month apart from June, and adult males from August through to February. It seems likely that the females were around in June but being distracted with butterflies etc. I neglected to look, I have made a note in my diary to search for them this year!

My observations have been undertaken over two years with relatively mild winters and the population on our wall lead a rather sheltered life as the ivy is very dense and provides excellent cover and protection from the cold. I have found males and females out on leaves after three consecutive days of very hard frost in January so they appear to be fairly hardy!

I hadn't specifically looked for juveniles in 2015 but eagle-eyed Nicki Farmer brought the first ones she spotted in 2016 to my attention at Littleton Pastures on 7<sup>th</sup> July and on checking our wall the next day I found them there too. It's not surprising I hadn't noticed them before as the adults are only 3-5mm you can imagine how tiny the youngsters are, spotting them requires sharp eyes and patience. If you want to go looking for *Nigma walckenaeri* for the sake of your eyesight I'd recommend waiting until September/October/November when the adults are busy mating and the ivy flowers are attracting lots of insects so the webs are quite obvious as they are stocked with abundant prey items!

In November 2015 I found a spider with a rust-coloured lump on its abdomen, it seemed to be a one-off and I couldn't be sure that it wasn't just something that had got stuck onto its back while it was clambering around. However at the end of September 2016 I found a dead spider with a rust coloured protrusion erupting from its abdomen. It looked as though it may have been parasitised, possibly by entomopathogenic fungi. In mid-October I found another with a 'rusty lump' on its abdomen which seemed to be attached to the web. Initially I thought it was dead but it moved and managed to detach itself, unfortunately I didn't come across this spider again to follow its progress. As yet I have been unable to get a definitive answer as to the cause but will look out for further examples this year.

Despite checking many trees with ivy climbing up the trunk in 2015 I found no evidence of the spiders on the mature ivy leaves and wondered whether it was due to the lack of flowers down at my level to attract their prey. So when in September 2016 I spotted a tree with ivy in flower on the trunk at a height that I could inspect I was delighted to find a healthy population of *Nigma walckenaeri*. This became my new 'haunt' for the autumn and I found the spiders at all levels from the ground, up to as high as I could see. Previously while checking the spiders on the wall I had only tended to look at eye-level and above as that was where the ivy flowers were. Unfortunately for my knees a lot of the action seemed to take place low down. I saw several pairs and noticed that sometimes the male lifted the female off the leaf during mating, also on a few occasions the female moved away after mating leaving the male at the location of her web/retreat.

I soon discovered that if you hang about in one place long enough the local insect population look upon you as 'part of the furniture' and I

became a regular landing platform for various social wasps, solitary bees, flies and Ichneumonids.

As social wasps are one of the regular visitors to the ivy flowers and *Nigma walckenaeri* are capable of taking prey much larger than themselves I wondered whether wasps could be on the menu. I did find a wasp 'face' near a web and although it was an interesting find it seems unlikely that it was the remains of a spider kill as I have not come across any wasp remnants in webs. At the end of September I spotted a wasp that appeared to be struggling to escape from a web, but as it was above my head I couldn't clearly see what was happening, but managed to take a short video clip. Much to my surprise the video revealed that the wasp was dragging a spider out of the web and flying off with it!

The revelations continued, as just over a week later while videoing a spider that had captured a fly and was in the process of despatching it, a wasp flew in. There was a brief tug of war and then the spider sensibly withdrew under her retreat and the wasp flew off with the fly. This second wasp seemed to have the better strategy as by leaving the spider alive, it could make return visits for a top up once the larder had been replenished.

The *Nigma walckenaeri* webs spun across the surface of the leaves are very effective at catching insects as are the fairly loose strands laid down on the leaf surface, but one feature that I did not notice until I looked closely at some of my photos was a series of small loops of silk along the edge of the leaf. Possibly an effective trip/tangle wire for insects landing on the edge or moving from the underside to the top of the leaf?

The egg sacs/cocoons produced by *Nigma walckenaeri* continue to cause me some confusion as I have seen the spiders near different types and have been trying to establish which they produce. The different forms I have seen are:-

1. Ones that look like a 'tangled fibrous cotton wool ball' sometimes seen singly but also in clusters of up to six.
2. A dense flat web with one or more thickened areas beneath the top layers. These thickened areas are reminiscent of fried eggs - with the thick raised area in the middle containing a circle of up to half a dozen eggs.
3. A dense flat web with one or more thicker areas containing bundles of numerous eggs cocooned in silk.

While observing a trio of the ball-shaped ones between 29<sup>th</sup> September and 11<sup>th</sup> of October 2015 I found a male with them on three occasions and a female twice. I kept a check on the egg sacs in the following months hoping to see some tiny green spiderlings, as it seemed unlikely that the adults would spend time in a retreat adjacent to and partially enclosing egg sacs unless they were their own. I saw four spiderlings by these egg sacs (in late October, early November and early March) but they were all off-white/pale grey with dark markings on their abdomens. Although young spiders can start out pale and take on their adult colouring as they develop, the dark patches make it seem unlikely that these were *Nigma walckenaeri*.

In mid June I found a Cucumber spider (*Araniella* sp) in its web on a leaf with one ball shaped egg sac and a week later it was there again and another had been added. At the end of July a female *Nigma walckenaeri* was on the same (rather distinctive!) leaf with the two egg sacs on three occasions over five days, the cocoons had almost disappeared by early August ending that study rather prematurely. I also came across another couple of *Araniella* spiders with similar egg sacs in June/July and a cluster of six egg sacs that produced what looks like an *Araniella* spiderling at the end of September. As Geoff Oxford from the British Arachnological Society has confirmed that *Araniella* spiders produce egg sacs of this form it seems probable that the ball shaped egg sacs I have been finding were produced by *Araniella* rather than *Nigma walckenaeri* but raises the question as to why they were spending time by them, maybe they were hoping for a spiderling snack?

Harry Green had a female *Nigma walckenaeri* in captivity that produced an egg sac on 5<sup>th</sup> November 2015 and spiderlings were seen on 24<sup>th</sup> December. The cocoon appeared to be of the second form mentioned but as Harry commented being produced in a petri-dish may have affected the shape and the indoor temperatures could have had an effect on the timescale for hatching.

I first came across the third form of egg sacs in April 2015 when I spotted one where eggs had been exposed and scattered, and in October, November 2015 and January, February 2016 I came across several more thick multi-layered webs with egg sacs underneath. However it was not until May 2016 that I came across one accompanied by a female *Nigma walckenaeri* spider. I found the eggs on 23<sup>rd</sup> April, on 2<sup>nd</sup> May the eggs were well covered with sheet webbing, but the next day when I photographed the female with the eggs they were partly uncovered and far more visible. She was with the eggs under the retreat every time I checked over a period of four days.

I continued to check regularly up until the 18<sup>th</sup> but then was unable to find them amongst new leaf growth and was away for a couple of days. Unfortunately I missed the hatching, as when I looked on the 23<sup>rd</sup> May the eggs had gone. There was however a small yellowy/green cluster of what (with a stretch of the imagination!) may have been a mixture of tiny *Nigma* spiderlings, spider moults and egg case remnants which were in the position where one of the groups of eggs had been. Unfortunately they were so small that I wasn't able to get a decent photo to be sure. They were still around the next day but that was the last I saw of them.

Some spiders spend time with their eggs protecting them after they are first produced and some help their young emerge from the cocoon. But if photo 21 shows a female preparing to help her young hatch it does raise the question of timing, as mating takes place in autumn presumably the eggs are produced soon after? It seems quite a long time for the female to survive and hang around to help out at egg hatching time in spring. It also looks like a lot of eggs for a small spider to produce even if different batches are produced over a period of time.

Although the egg sac produced by Harry's captive spider looks like the second form, it would be interesting to see what the spider produces under natural conditions. It may be that the only difference between the second and third form is the quantity of eggs produced, so the hunt for egg sacs will continue in 2017, preferably ones accompanied by adults and emerging spiderlings!

Although they continue to perplex me it has been another interesting year keeping an eye on my little green friends and if anyone can shed any light on my many unresolved queries I'd be most grateful! If you spot *Nigma walckenaeri* in your area please send the records into the WBRC to help us to see how they are spreading.

#### Acknowledgements

Thanks to Harry for the use of his photos and support; to Nicki for her excellent spotting abilities!  
Thanks also to Geoff Oxford of the British Arachnological Society for confirming the form of *Araniella* egg sacs.

#### Reference

Young, J. 2015. Observations on *Nigma walckenaeri* Worcestershire 2015. *Worcestershire Record* 40:13-19.



01. *Nigma walckenaeri* possibly affected by fungal parasite 11Nov15. Jean Young.



02. *Nigma walckenaeri* possibly affected by fungal parasite 28Sep16. Jean Young.



03. *Nigma walckenaeri* possibly affected by fungal parasite 28Sep16. Jean Young



04. *Nigma walckenaeri* possibly affected by fungal parasite 16Oct16. Jean Young.



07. *Nigma walckenaeri* mating 04Oct16. Jean Young.



05. Tree trunk with flowering mature ivy. Jean Young.



08. Remnants of Wasp face 4Dec15. Jean Young



09. Wasp taking fly from *Nigma walckenaeri*. Jean Young.



06. *Nigma walckenaeri* mating lift 21Sep16. Jean Young.



10. *Nigma walckenaeri* with prey 25Sep16. Jean Young.



11. *Nigma walckenaeri* with spider prey possibly juvenile *Araniella* 02Nov16. Jean Young.



14. Possible *Nigma walckenaeri* egg sacs Jean Young.



12. *Nigma walckenaeri* - Curly strands of silk along edge of leaf 21Sep16. Jean Young.



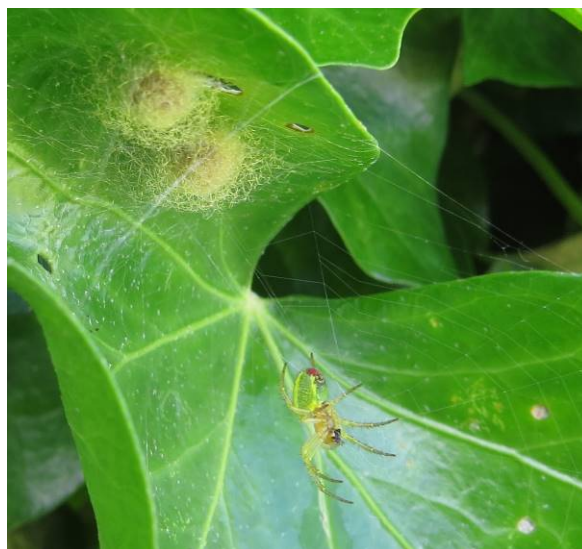
15. Possible *Nigma walckenaeri* egg sacs 02May16. Jean Young



16. Ball shaped egg sac with spiderling emerging. Jean Young.



13. Egg sacs with possible *Araniella* spiderling 25Sep16 Jean Young



17. *Araniella* spider with eggsacs 20Jun16. Jean Young.



18. *Nigma walckenaeri* with egg sacs 22Jul16. Jean Young.



21. *Nigma walckenaeri* with eggs 3May16. Jean Young.



19. *Nigma walckenaeri* spiderling hatched in captivity 27Dec15. H. Green.



22. Remnants after eggs hatched possible *Nigma walckenaeri* spiderlings 23May16. Jean Young



20. *Nigma walckenaeri* cocoon made by captive spider. H. Green.

#### Images

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16. Ball shaped egg sac with spiderling emerging. Jean Young.
17. *Araniella* spider with eggsacs 20Jun16. Jean Young.
18. *Nigma walckenaeri* with egg sacs 22Jul16. Jean Young.

19. *Nigma walckenaeri* spiderling hatched in captivity 27Dec15. H. Green.
20. *Nigma walckenaeri* cocoon made by captive spider. H. Green.
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22. Remnants after eggs hatched possible *Nigma walckenaeri* spiderlings 23May16. Jean Young