

HEDGEHOG DISAPPEARANCE IN KIRTLINGTON **DURING MAY 2020**

Summary

Kirtlington is a mid-Oxfordshire parish of around 460 properties and just under 1,000 people with a very active wildlife group, the Kirtlington Wildlife and Conservation Society (KWACS). One of KWACS' activities is running what in 2018 was said by the then national Hedgehog Street co-ordinator, employed by the People's Trust for Endangered Species, to be the "U.K.'s largest volunteer-run Hedgehog Street"¹. The Hedgehog Street initiative promotes the making of holes through walls and fences to connect gardens that otherwise would typically be excellent habitat for hedgehogs except that individual unconnected gardens are usually too small to support a breeding female².

In May 2020, there was a sudden and near total disappearance of hedgehogs from Kirtlington village. The evidence for that is presented in this paper and, in the opinion of the author, is very clear cut. This paper goes on to consider the possible causes and presents the evidence that was collected at the time.

What is striking is that the decline happened during one of the driest Springs in Oxfordshire on record and it happened in the middle of the unprecedented lock down period at the start of the measures to combat the Covid-19 epidemic. It is speculated that these are connected with the disappearance of the hedgehogs but the exact mechanism is unclear. Some evidence points to the possible involvement of badgers but that is not in any way as clear cut as the evidence for the hedgehogs' disappearance.

Kirtlington and Hedgehog Street

Kirtlington is located 6 miles north of Oxford and 6 miles west of Bicester. Amenities include a 13th Century Church, village hall, primary school, public house and hotel. It is a mix of old properties dating back several centuries often with large gardens surrounded by stone walls plus newer small housing estates and in-fill properties, more often than not with fences and/or hedges. The wider parish includes Kirtlington Park, a polo pitch, a golf club, several farms, the River Cherwell and a canal with a lock. The village website presents a comprehensive overview of the village.³



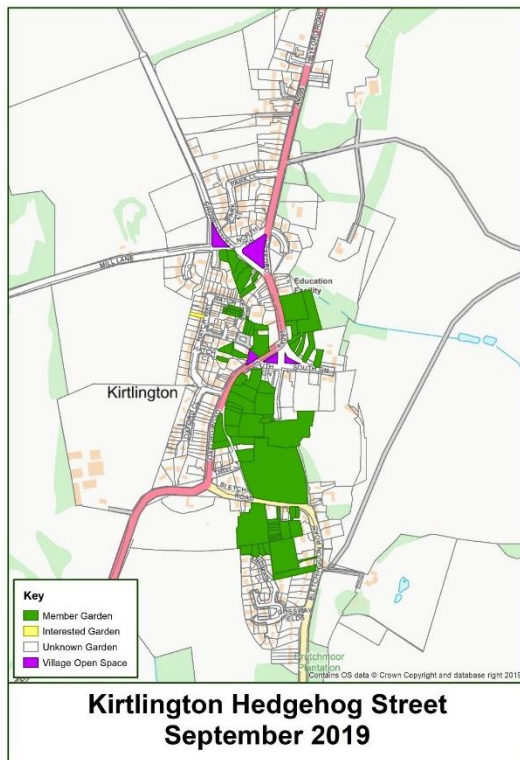
Starting in 2017, KWACS began making tunnels through the walls that divide many of the properties and holes in fences. This initiative included an emphasis on public engagement so the village shop (now closed), public house, church and school were all included. Also, in a prominent location in an ancient wall, tunnels were carefully constructed to form an attractive talking point for the residents concerned and their friends.

¹ Personal communication, April 20th 2018.

² See <https://www.hedgehogstreet.org/>.

³ See <http://www.kirtlingtonvillage.co.uk/>.

As properties joined Kirtlington Hedgehog Street, especially those with children, they were encouraged to put out hedgehog food and place a stick over the holes. If evidence emerged of hedgehogs being present, a footprint tunnel and then a camera trap were often lent to the property owners. Some citizen science was also attempted to assess the prevalence of hedgehogs before and after in the newer areas of the Street that have been installed. Again, the village website presents a more detailed overview of the Street.⁴



Kirtlington's Hedgehog Street has grown to around 55 properties (as left) and includes innovative connections such as, to KWACS' knowledge, the world's first purpose-built hedgehog staircase (pictured above). It also includes a hedgehog ramp (pictured below) connecting two properties where the ground level difference is 850mm. This attracted some attention in the wider hedgehog-loving community when a video of a hedgehog using it was posted to Twitter, receiving over 32,000 views⁵



Events of May 2020

By May 2020 Kirtlington Village had 3 households which regularly monitored the presence of hedgehogs using a night vision camera trap and two which had been lent a camera trap at the time as part of some hedgehog citizen science work⁶. These households can be summarised as:

- Household 1: a central village property of 2/3 acre with a stone-built house dating, in parts, probably to the 17th century surrounded with stone walls
- Household 2: a new built stone in-fill property in a central location on a plot of around 1/4 acre with a mix of stone walls and wooden fence
- Household 3: a terraced 19th century cottage close to the centre of the village with an open pocket handkerchief sized front garden
- Household 4: an early to mid-20th century property set in around an acre of formal gardens and orchard to the south of the historic heart of the village surrounded mainly by wooden fences but with one high brick wall
- Household 5: a central village property of around 1/3 acre with a stone-built house dating back at least to the 18th century surrounded by stone or brick walls

The timeline of relevant events relating to the above properties is as follows:

⁴ See <http://www.kirtlingtonvillage.co.uk/kirtlington-hedgehog-street>.

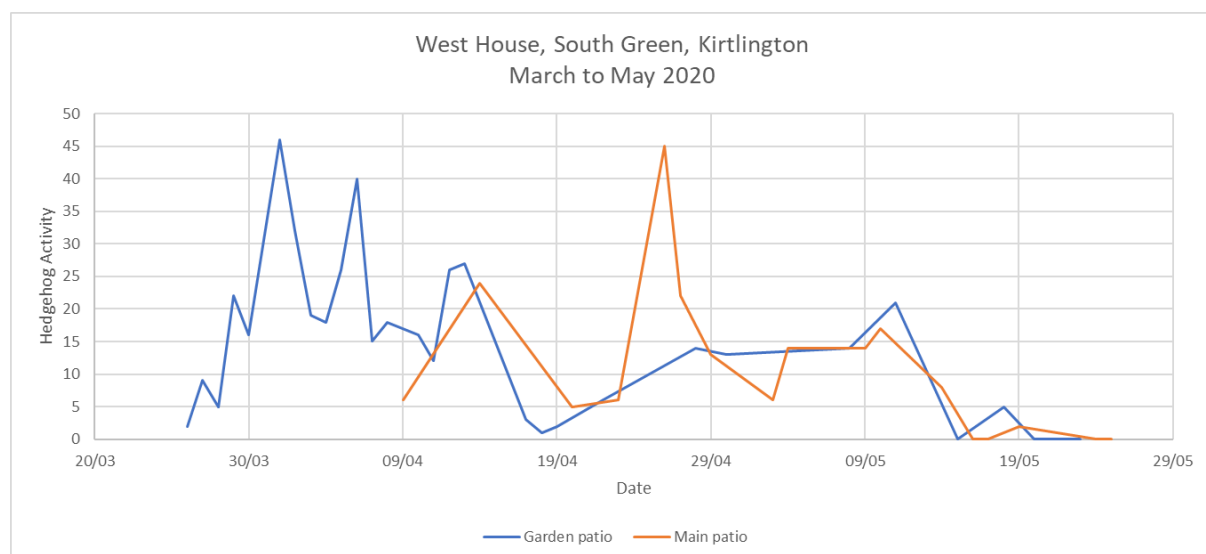
⁵ See https://twitter.com/team_KWACS/status/1169386060331278347.

⁶ With thanks to the People's Trust for Endangered Species who had provided the camera traps.

- May 5th: household 3 emailed the author expressing concern that no hedgehogs had visited for “a couple of weeks”
- May 6th: household 4 emailed the author to advise that a “week ago” they had found a dead hedgehog in their garden and that a badger had appeared on their camera trap eating food left for the hedgehogs
- May 15th: household 1 recorded its first night of no hedgehogs on their camera trap
- May 15th: household 2 reported a reduction in activity from probably 4 or more to probably only two hedgehogs
- May 19th: household 1 recorded its last night with a hedgehog
- May 19th: household 5 recorded its last night with a hedgehog
- June 1st: household 2 reported a reduction to only one hedgehog from probably two
- June 6th: household 2 recorded its last night with a hedgehog

In relation to record 2 above from May 6th, the household later advised the hedgehog remains consisted only of its skin and prickles.

Household 1 has been sufficiently consistent with its camera trapping of hedgehogs to be able to extract useful data from this, as below. Activity is measured by the number of videos in a night in which a hedgehog appears (if two appear in one video that is recorded as one record). This is imprecise but is a satisfactory proxy for activity levels, given the practical difficulty of identifying individual hedgehogs. The camera trap was consistently set at a feeding station on the “garden patio” (blue line) until a second feeding station was established on “main patio” (brown line) on April 9th from when the one camera trap in use was moved between them. The initial reduction in activity shown at that point is consistent with the hedgehogs having to first find the new location and then splitting their activity between the two stations. The disappearance of activity from May 19th is very clear from this graph.



Kirtlington has an active village Facebook page that KWACS uses to publicise its activities. Hence, to find out more information, on May 28th the author posted a statement expressing concern about the possible disappearance of hedgehogs which included the following.

“What we ask is, for the last two weeks:

- has anyone seen a hedgehog anywhere in the village,*
- if so, did this include hoglets with an adult (an excellent sign) or without an adult (very worrying),*
- has anyone seen the remains of a hedgehog anywhere,*

- d) *if so, was the hedgehog intact (a possible sign of death by disease or fighting), was there any sign of it having been eaten (typically leaving just the spines and skin) or was it drowned maybe while looking for water (e.g. in a swimming pool),*
- e) *has anyone seen foxes or badgers in their gardens or around the village, and*
- f) *has anyone heard an odd loud screaming noise after dark that lasts for about a minute – sadly a sign of a hedgehog being eaten?”*

A summary of the responses received to the post either on-line or verbally to a member of the KWACS committee is:

- 6 additional reports of the disappearance of either hedgehog droppings or a hedgehog that had been regularly visiting a garden
- 1 report of a hedgehog still coming every night to food and water in a garden in the village not previously known about by KWACS
- 1 report of a one-off sighting of a hedgehog on the golf course adjacent to the village
- 4 reports of a badger in the village
- 1 possible report of hedgehog screams (they will emit what to humans sounds like a blood curdling scream as they are eaten by badgers⁷ and there is one report of such a scream at dusk from Kirtlington Park, albeit this can be confused with the calls of other animals)

More recently, household 4 has reported occasional visits by a hedgehog and another household in its vicinity has more recently acquired a camera trap and reports a hedgehog visiting every night. Also there has been an unconfirmed report of hedgehog droppings in two adjacent gardens in a separate part of the village. Hence the village’s entire population of hedgehogs has not disappeared but there are no other reports of any sightings or evidence of them. Hence it is clear that there has been a very significant decline in Kirtlington’s hedgehog population.

Possible Explanations

A number of possible explanations for the disappearance of Kirtlington’s hedgehogs have been raised in the village social media and elsewhere. These include the below.

- **Babies**: at first it was hoped that being busy with babies was the reason but expert comment⁸ is that a mother will not go out for only one night after having given birth – so, as time elapsed, it became very apparent that was not the reason.
- **Thirst / hunger**: lack of water and earthworms (due to the dryness) could have killed them, weakened them sufficiently to make them susceptible to other problems or forced them to move away to look for food (maybe near the river?) – but would that cause such a quick and dramatic decline, where are the remains, would one not expect hedgehogs to stay where people put out food and water and why have they not now returned?
- **Disease**: enquiries made, notably of a local hedgehog rescue KWACS works with⁹, do not indicate there are any diseases that could cause this rapid decline and there are no reports of any sick hedgehogs having been seen.
- **Poisoning by slug pellets or by other means**: contrary to popular belief, hedgehogs eat few slugs but when earthworms are scarce they may be more likely to and so risk eating slug pellets – but it was so dry there were very few slugs and no evidence could be found to support other suggestions that feeding / water bowls may harbour disease in the way bird feeders do.
- **Change in pattern of human behaviour or human action**: it was suggested that people staying outside more in the evenings in the hot weather could put hedgehogs off coming into gardens –

⁷ Personal communication to author from his brother who has witnessed it and see <https://www.youtube.com/watch?v=ycXsKwldgsg>.

⁸ Hedgehog by Pat Morris, published by Collins, 2018.

⁹ Huxley Hedgehogs

but that seems very unlikely given how tolerant they are of people and, while there are those who do not like hedgehogs for various reasons, it seems equally implausible that anyone would go to the lengths of mass killing Kirtlington's hedgehogs.

- Predation by foxes: foxes are known to occasionally eat a hedgehog and are very frequently observed on camera traps in Kirtlington set for hedgehogs – but they are not known to widely eat hedgehogs and, if they had, where are the remains?
- Predation by or other impact of badgers: badgers are known to eat hedgehogs as they have the strength to open them when curled up and the village has badgers living in the fields around it – could this be the cause?

The evidence needs to be considered. What actual evidence there is can be summarised as below.

- Unseasonal weather: the UK, having experienced record-breaking precipitation in February, then recorded a very dry Spring with the Met Office saying May was the sunniest calendar month on record¹⁰. These conditions resulted in a lack of earthworms for a wide range of animals that rely on them, including hedgehogs, foxes and badgers. This would be particularly the case when rearing young.
- The Covid-19 lock down: it is the case that the disappearance of Kirtlington's hedgehogs coincided with the national lock down effort to control Covid-19. It was a time when there was less roadkill for scavengers to eat and fewer human movements at night which may have emboldened animals to visit gardens that might not have otherwise.
- Badgers in and around the village: as well as the four reports of badgers in the village referred to above, there were also badgers recorded (i) on a camera trap in the north of the village (in an area avoided by Kirtlington Hedgehog Street due to historic reports of badgers in the area), (ii) in daylight around local farm buildings (reported to be looking for food), and (iii) in Kirtlington Park just outside the village which was a young dead emaciated badger.
- Hedgehog remains: the skin and prickles remains referred to above found by household 4, is characteristic of how badgers eat hedgehogs i.e. they open them when curled up with their powerful claws, place them on their backs and eat them from underneath.

The above evidence suggests that the proverbial “perfect storm” may have occurred i.e. badgers, hungry from the lack of earthworms and, maybe, roadkill, came into the village when quiet due to the lock down in search of food and found the hedgehogs. However, the number of reports of badgers being seen in the village during May seems low if predation of hedgehogs by badgers was widespread. Also, just one set of skin-and-prickles-only remains has been found. Hence the evidence is not clear cut.

So, what other possible evidence is there? One anecdotal report from a nearby village where it is said there are no badgers is that hedgehogs are being seen there as before. A photograph of a badger carrying a hedgehog in Buckingham caught on a CCTV camera and a report of a badger taking a hedgehog from a garden in an adjacent village have been shared with the author. Interestingly, the current national Hedgehog Street co-ordinator advises she has not received any similar reports to Kirtlington from anywhere in the UK.

Patrick Doncaster, Professor of Ecology at the School of Biological Sciences at the University of Southampton, studied hedgehogs in Kirtlington Park in 1992¹¹. He reported that there were 35 hedgehogs at the time in the 25 acres of Kirtlington Park. He compared that population with populations at two other locations – one with a greater concentration of badgers and one without. His findings included the following interesting results:

¹⁰ UK Met Office, see: <https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2020/2020-spring-and-may-stats>.

¹¹ Hedgehogs in Kirtlington Park and Environs by Professor Patrick Doncaster, 29 December 1992

- hedgehogs show a marked preference for the mown grass of lawns, playing fields and polo fields due to the prevalence of earthworms,
- the density of hedgehogs at the three sites correlated inversely to the concentration of badgers (as seen elsewhere),
- two of his study animals in Kirtlington were eaten during his work – one by a dog and one by a badger (as shown by hairs on the remains) while at the site with more badgers, the evidence pointed to 5 having been eaten by a badger and one by a fox, and
- “hedgehogs do appear able to assess the threat posed by badgers, as they will abandon areas regularly used by them” and if the smell of badgers is artificially introduced close to a hedgehog “it would respond immediately by moving to another feeding site”¹².

Conclusions

Given the affection in which hedgehogs are held by many (including the author!) and the considerable effort expended by many in the village to promote hedgehogs, the sudden and near total decline of the village’s hedgehog population is a matter of great upset. Some of the resulting comment in village social media can even be described as emotive. However, it is important to not jump to conclusions, examine what evidence exists for what has happened and remember that ‘nature is nature’.

In the opinion of the author, such evidence as there is does point to badgers. However, it appears not to be conclusive that badgers ate almost all of Kirtlington’s hedgehogs during May. The low number of reports received of badgers in the village and just one “skin-and-prickles-only” carcass being found suggests an open mind must be maintained. From the one such carcass found in a garden where a camera trap showed badgers to be present, it is undeniable that badgers are very likely to have caused the loss of one hedgehog so it is very possible that they consumed other hedgehogs as well. But it is also very possible that more than one factor played a part. Hedgehogs would have been under significant pressure from lack of food and water. Some may have died as a result and others may have moved to the adjacent River Cherwell valley with permanent water and probably more food. Professor Doncaster’s work is interesting and it is equally possible that the smell of badgers coming into the village may have made them move hurriedly away.

To end on a positive note, at least one hedgehog remains in Kirtlington at the time of writing as it is being caught on a camera trap every night. What will be interesting to see is the extent and how quickly hedgehogs return to the village.

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- *Professor Patrick Doncaster for the use of his 1992 Kirtlington Park study*
- *Olivia Stanton for data processing*

¹² This is not universally the case as there are numerous reports of badgers and hedgehogs feeding together.