

Summary of key points in Wildlife Trust Hedgehogs talk by Andrew Jackson 23-9-19

State of Hedgehog Decline

We are down to less than 1 million hedgehogs. We know that there are 65 million people in the country. If there are 1 million hedgehogs as indicated in 'The State of Britain's Hedgehogs' – (a report by British Hedgehog Preservation Society and Peoples Trust for Endangered Species) that works out at 1 for every 65 people. Therefore, in a town like Brackley with 15-20,000 people, we would expect there to be an average of 300 hedgehogs for the whole town. Assuming half are males and half are females, we have probably *only got 150 breeding females in the whole of Brackley.*

Background reference to articles by the experts regarding the decline

In the Daily Mail written by Hugh Warwick, spokesperson for BHPS:

"In the 1950s Britain had 36 million, now there are fewer than a million (*a loss of 97%*)- where have all the hedgehogs gone? ...our hedgehogs are disappearing as fast as the world's tigers.... This is the alarming conclusion... "

There is now more badgers than ever before, there is now more foxes than ever before, but there is now less hedgehogs than ever before. When people attribute the decline to global warming and say it is affecting all nature, I would disagree. Something is affecting hedgehogs and it is not something that has necessarily been formally discovered yet.

Article by Peoples Trust for Endangered Species:

"Urgent – hedgehogs are in trouble - hardly believing what our regular mammal surveys were telling us about a decline in hedgehogs we double checked our findings with several other charities, sadly the facts speak for themselves, hedgehog numbers have nose-dived over the last ten years. Over a quarter of the population lost, closer to half in some parts of the UK"

"The sudden decline in the population in rural areas and lack of clarity as to exactly why, makes hedgehog survival around our towns and cities suddenly very important indeed".

The experts are predicting extinction in the next 20-30 years. However, the experts acknowledge that they don't yet know **why** we are losing our hedgehogs.

Reasons for decline typically put forward are habitat loss, predation by badgers and foxes, road casualties, use of garden pesticides, climate change, global warming etc. There are probably 15 or 20 contributing factors but what's clear is the experts are not aware of one overriding factor why.

We used to see hedgehogs run over in the countryside as well as the towns. Now you only see hedgehogs run over in the towns and villages, the hedgehogs are missing from the countryside. Realizing that the countryside is barren of hedgehogs is the first starting point. We know there is no hedgehogs in the countryside as the roadkill shows that there is none living in the countryside. While we don't wish to hear of hedgehogs getting run over in Brackley, it does however provide an indication of their presence.

We have a marooned hedgehog population in the town, and those hedgehogs are dying at 5% per year until the last hedgehog is gone. That is going to happen in our lifetime unless we find a way to stop it. The difficulty is that nobody really knows why we are losing our hedgehogs.

Andrew's Theory

I have discovered why we are losing our hedgehogs, and it isn't for the reasons the scientists currently think:

I believe that virtually every juvenile born nowadays no longer reaches breeding age, so for every adult that does die on the roads it is not being replaced by a younger one.

Each winter we are surrounded in Brackley by "autumn juvenile" hedgehogs. Autumn Juvenile hedgehogs are small hedgehogs at the end of the autumn that won't survive the winter. At the end of November, if you find a small hedgehog it needs rescuing just because of its size. It can look perfectly healthy, but the size of the hedgehog is a good indication that it won't survive the winter.

(Traditionally Autumn juveniles are the baby hedgehogs that were born too late in the year to grow quickly enough before winter arrived. The mother hedgehogs are repeat breeders and they can typically have litters from June to September. The late litters often don't build up enough body fat to survive their first winter. So traditionally autumn juveniles were second litters that rarely survived because they were born too late.)

What I have noticed over the last 12 years is that there has been a huge increase in the number of "autumn juveniles" in Brackley, and that doesn't correlate with the fact that we have lost 97% of the adults. Each year we find hundreds of sick juvenile hedgehogs in Brackley and yet we only lose 30 per year to roadkill. Which is the bigger problem – all the juveniles that are getting sick or the few adults that are getting run over?

The increase in autumn juveniles isn't proportionate to the loss of the adults. If we have lost 97% of the adults how can there be thousands of extra 'second litters' suddenly – so to me it didn't add up.

I started to look at why there has been an increase in autumn juveniles in Brackley and I am absolutely certain that I know why – and it is not because there are more second litters. I can predict that we will rescue hundreds of sick juveniles this winter in Brackley, and yet we only lose 20 or 30 on the roads.

What I believe I have found is evidence that **most hedgehogs born nowadays in Brackley survive their first Summer but then get sick in their first winter and don't survive**, so for example, every juvenile hedgehog that I mark and microchip in April or May turns up still small in October or November. That tells me that it is not a late born autumn juvenile, and because I can see the microchip from earlier in the year I know that I microchipped that juvenile hedgehog over 6 months ago so why is it still small in November? I looked into it further and asked my vet if there any way that we can tell how old a hedgehog juvenile is by perhaps taking an x-ray of its teeth and seeing whether the milk teeth have come through or whether the adult teeth are present? The vet suggested that there is actually a lot of information you can get from the skeletons and that information is available by taking an x-ray.

Using X-ray to determine age:

If you take an x-ray of a human baby at 1 year old the kneecap doesn't show, because the kneecap hasn't grown, if you take an x-ray of a human baby at 3 years old the kneecap is fully there. So the knee cap grows between a one year old and a three year old human baby.

Imagine, hypothetically, taking an x-ray of a human baby every month from month 12 to month 36 – you would get the growth of the kneecap in a typical human baby, if you take two human babies one double the size of the other the knee cap still grows in the same months as the other one. That equivalent level of control is there with the growth of these bones in juvenile hedgehogs.



The image shows a 3 month old hedgehog. The hand is not connected to the arm, there is great big gaps in between the bones. The white bits are the bone that is growing, it is growing from the ends and getting longer. If you take an x-ray of a hedgehog every month you can see the bones growing and fusing together at different points in their lives. I believe I am the only person in the country who has got the x-rays of the skeletal development of juvenile hedgehogs from month 3 to month 9 and why that is critical is because every hedgehog I find in November I can take for a one-off x-ray and calculate what month it was born. It is logical and there is evidence to support it.

We would like to share this information with the scientists so they can change the outcome. I have been trying to highlight to the experts that we know why we are losing our hedgehogs, and it isn't for the reasons that they think.

We know that the first litter of juvenile hedgehogs are now getting sick later in their first year, I can prove all of that, but where that leads to is, why?

Why juveniles get sick:

Most people are aware that hedgehogs eat slugs. Many are also aware that there has been an increase in lungworm in dogs. Understanding that there has been an increase in dog lungworm is critical to understanding my theory and secondly understanding that hedgehogs eat slugs is also fundamental to understanding my theory. Hedgehogs get the lungworm by eating the slugs. The same slugs are the carrier of the lungworm that effects both dogs and hedgehogs.

Where did the slug get the lungworm from? A really important question, and when I knew the answer it made a lot of other things fall into place because each winter when I get a small, juvenile hedgehog in I look at its poo under the microscope, that tells me what worms are living inside the hedgehog. I have got all the worming medicines, I just need all the poorly hedgehog to give the worming medicine to in order to rectify the problem.

There are hundreds of sick hedgehogs running round Brackley each Winter and they are all producing poo that has creatures living in it, it doesn't take a rocket scientist to work out that if slugs eat faeces that would draw the circle.

We are going to find 200-300 dying juvenile hedgehogs again this Winter and I can guarantee their faeces will tarnish the slugs for next year's juveniles, so this is a self-perpetuating problem.

If there was a magic solution to rectify this, it would be to get rid of all the slugs in Brackley, because although the hedgehogs would go hungry, they would no longer get the lungworm, the slugs are the only carrier of the lungworm. If we had a town campaign against slugs, not using slug pellets or poison, it would reduce the number of juvenile hedgehogs that do get sick each year.

The slugs are now carrying more parasites and that is what is killing our juvenile hedgehogs.

Adult hedgehogs have enough immune strength, that they can eat the slugs that contain the parasites, and not get sick. Adult hedgehogs don't die from eating the slug that carries the lungworm. However, the juvenile hedgehogs have got weaker immune systems, so the same slug overwhelms the juvenile in its first year.

What I have also found evidence of is that the adult hedgehog can have a background level of parasites that isn't causing a problem, but when that mother hedgehog has a litter the babies are born with

lungworm, they can't tolerate. An ever-increasing number of hedgehogs are born carrying a fatal dose of something they didn't need to begin life with.

The dog lungworm as we now know it actually only came to this country in the 1950s in a dog from the south of France. What then happened was that dog had a poo, the poo went to the slugs, the slugs picked up and passed it on. Eventually now we have got to this position where dog lungworm is now being carried by far more millions of slugs than it ever was 30-40 years ago, and the juvenile hedgehogs are eating more slugs with parasites than their immune system can tolerate. It takes approximately 3-6 months for a juvenile hedgehog to get that immune strength against parasites balance wrong. It takes 3 months for the hedgehog to collapse, during that 3 months it is losing weight, day after day, and the reason it is losing weight is because it has vomiting and diarrhea because of the worms. That vomiting and diarrhea may not be evident to those feeding it. The only way to know which small hedgehogs are growing with food is to weigh them and mark them.

Local Campaign to examine hedgehogs

During October the reason we find so many sick juveniles is because most of the healthy adults hibernate from the end of September. It is not that weather related, we don't need a foot of snow for hibernation to happen. The first ground frost will trigger 90% of the adults to hibernate, and then they might only dip in and out of hibernation for the first week or two.

If all the healthy hedgehogs went into hibernation at the end of September it would be easy to make a rule saying all hedgehogs out in October need to be rescued, but that's not true. So what I say is: please can I examine every hedgehog you find awake in October or November because that way I can examine it with you and see whether it is a healthy adult/juvenile or one that needs help. Most people that report a healthy adult hedgehog in October or November are actually seeing a dying juvenile, but they don't realise that. So just by encouraging other people to phone me if they see a hedgehog on a dog walk, potentially will save a life. The majority of the hedgehogs I examine in November are failing, but still look healthy to the untrained eye. What we are doing is finding far more sick hedgehogs per head of population than other towns this size.

Each winter in Northampton I estimate that 2000 juveniles will get sick and die without anyone noticing, the same applies to Banbury and Bicester and to Buckingham and Towcester. None of those towns have any campaign to look for Autumn juveniles and the reason for that is partly because the experts genuinely believe that these are second litters each winter. Their assumption therefore is the first litter must be safe, and that is the assumption that is causing the problem. If I could show them that every juvenile we microchip in the Summer washes up sick in the Winter they would realise there is a problem.

The lifecycle is broken

The juveniles no longer reach breeding age in enough quantity to replace the dying ones, whether that be the ones dying from roadkill, from predation, from old age, from gardening accidents. We find over 200 sick juveniles in Brackley each Winter. If that was mathematically extrapolated – it works out there would be 5 million sick juveniles found across the UK. 5 million would be rescued each year. All of the wildlife experts tell us that one of the most major factors is 50,000 get lost to roadkill. If 5 million juveniles could be saved that would far outweigh the other losses.

Each winter, we find evidence of juveniles getting sick in their first year, those juveniles by x-ray can be proven to be first litters. Therefore, we are short of adult hedgehogs in Brackley because the juveniles are getting sick.