

Very little research done on large scale solar farms has been carried out on biodiversity in UK, as we sadly enter unknown territory in this country. Most research has been done abroad on large scale developments and found devastating results on wildlife and biodiversity. Even on small scale solar farms in the UK results of all data available is devastating at best.

Scopwick Beck – biodiversity and importance

Fact -England's chalk streams are one of the rarest habitats on earth, with the majority found in England! Their crystal-clear waters are home to water voles, white-clawed crayfish and support a diverse range of aquatic life, insects and plants.

- **Yes, Scopwick Beck is considered a chalk stream. It is fed by springs from the Lincolnshire limestone aquifer and has clear water, characteristic of calcareous conditions.**
- **A survey by the Wild Trout Trust found that Scopwick Beck exhibits these features.**
- **Scopwick beck is classified as high priority under the Biodiversity Action Plan.**
- **Scopwick beck is a biodiversity Hotspot, and includes amongst other species invertebrates such as freshwater fish, shrimps, mayflies, caddis, rare flat worms and snails.**
 - **Scopwick beck also has a significant population of native water voles, an endangered species on the UK RED LIST.**
 - **Scopwick Beck also support otters, eels and various bird species like kingfishers, small egrets and herons which are all seen on a daily basis as well as water voles.**
- **Water voles**
 - Present in Scopwick Beck – photographic evidence.
 - – fastest declining British wild mammal.
 - Listed as endangered on the RED LIST for England's Mammals
 - Protected under the Wildlife and Countryside Act 1981
 - Included as a species of principle importance in England under section 41 of the Natural Environment & Rural Communities Act (2006)
 - Government website says you must consider the conservation of water voles as part of your planning decision – biodiversity duty.
 - Declined by 90-97% in UK

- Various organizations and initiatives are working to protect and restore chalk streams, including the Lincolnshire Chalk Streams Project
- The Heritage Lottery funded-project, which also involves the East Mercia Rivers Trust, The Environment Agency & the Wild Trout Trust, is restoring limestone becks in the Lincolnshire villages of Branston, Nettleham, Welton, Scopwick and Dunston.

- Aquatic life

Freshwater invertebrates, such as the caddisfly, soldierly, shrimp and the critically endangered white clawed crayfish have also flourished, along with eels, brown trout, sea trout, and bullhead fish, minnows, sticklebacks, flat worms. BAP priority beetle species including the Crucifix and Necklace ground beetles, which have also benefitted while the cool, calcium-rich conditions found in Scopwick beck have supported important freshwater plants such as the Marsh Marigold and water cress.

I would like to also include people in diversity species. The village beck is the centre of our village

- Children and dogs play in the beck at Scopwick and Kirkby Green Ford, not just villagers, but people travel from Ruskington and Metherringham to enjoy our beck, catching minnows and stickle backs before returning them to the water.
- The Royal Oak has tables along the beck side where customers paddle and dogs drink the water
- The Brownies, local primary schools and village children spend time learning species identification from our village stream.
- It is the centre of village activities with boat races at our Church Fetes and traditional Village show.
- Contamination of this water would obviously devastate the biodiversity, but also village life. It is associated with improving mental health especially lowering depression and anxiety levels.

- The breaking of the limestone to put the large panels in will crack the rock, so rain water that will quickly run off panels will soon flood the beck.

Even more importantly:

Solar cells contain a variety of metals such as lead, cadmium, arsenic, chromium and antimony, semi conductors such as silicon, halogens like bromine, chlorine and fluorine: organic compounds like polychlorinated biphenyls and even radioactive elements like uranium, thorium and radium. These are toxic substances.

If any battery storage caught fire or any panels got broken, toxic metals will run into this beck at the centre of our village, causing significant if not catastrophic effects on the wild life of the beck for many years, making it fatal for children to play in, and the River Witham into which it eventually flows.

Fields, Hedge rows, woods and ponds within the proposed area support a vast amount of biodiversity.

Snakes

- Adders (**an endangered species** and recently on the news) are declining rapidly throughout the UK and yet we see them regularly in our paddock at Kirkby Green and within the area where the proposed panels could be placed, on dog walks.
- Grass snakes (protected) are more common than Adders in the UK and are also regularly seen within the boundaries of the proposed development.
- Slow worms (a protected species) are often seen on Trundle Lane, the historic drovers lane that fairly recently had a Victorian Water tower removed.

All these three species are an intergrated part of the ecosystem and play important roles within the food chain in this area.

The noisy disturbance of building solar panels will certainly frighted shy snakes away as well as their food source and disrupt the food chain of the ponds, woods and grasses within the proposed area, particularly the area

between Blankney, Kirkby Green and Scopwick which is currently rich in these species and very peaceful.

- Woodlands and hedge rows within and close to the order of limits are currently in abundance with breeding songbirds, Owls, Red Kites, Harriers and buzzards.
- Walking on public footpaths in the area in last month the bird song is overwhelmingly beautiful. Skylarks, Yellow hammers, black caps, 3 types of finches, to name but a few.
- Studies have shown solar panels are too closely placed for owls and other birds of prey to hunt in between them.
- At least one breeding pair of **cuckoos** return to Scopwick every year. They have been heard by residents this year again and I have a recording from our garden.
- They are another **RED LIST** species within the order of limits of this proposed development. They often lay eggs in Pied Wagtail or Dunocks nests of which we have plenty in Scopwick and Kirkby Green.

There are a tremendous amount of insects in the air as you walk the paths within the proposed development, which are in decline in the UK.

- The returning swallows and more recently the swifts are swooping over the fields to catch them. The swallows swoop low over the crops, to catch the insects.
- Studies have shown these to collide with solar panels, and we are so lucky to have a large population of both swallows and swifts returning every year to this area as they have done for 100's of years.
- **Swifts** are on the **UK Red List** and are estimated to have declined 60% in the UK in recent years. With many old buildings and stables within and bordering the order of limits, we are lucky to have maintained a good population.
- However open fields with woodlands and hedge rows for shelter for the insects is of primary importance to feed and shelter this abundance of the insects these birds along with others rely.

Bloxholm Woods Nature reserve adjoins the boundary of the proposed solar “farm”.

- Buzzards are known to breed in the woodland and other notable bird species include woodcock, tawny owl and nuthatch. This wildlife reserve has many endangered plant species including orchids.
- I could go on -Mammals – hares, deer, fragmentation of populations etc

Almost 6 miles squared proposed. An area larger than Lincoln.

This is not sustainability we all know that. It must not happen. Even if we had free electric it would never be worth the destruction of habitat, farm land and village life.

Sarah Jackson, Member of Lincolnshire Wildlife Trust, Scopwick resident, 34 years in the agricultural industry.

Very little research has been carried out on biodiversity in UK in relation to LARGE scale solar farms. Most research has been done abroad on large scale developments and found devastating results on wildlife and biodiversity. Even on small scale solar farms in the UK results of all data available is sobering at best.

Scopwick Beck – biodiversity and importance at the heart of the proposed development

Fact -England's chalk streams are one of the rarest habitats on earth

- **Yes, Scopwick Beck is considered a chalk stream. It is fed by springs from the Lincolnshire limestone aquifer and has clear water, characteristic of calcareous conditions.**
- **Scopwick beck is a biodiversity Hotspot and classified as high priority under the governments Biodiversity Action Plan.**
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- **Solar cells from panels contain a variety of metals such as lead, cadmium, arsenic, chromium and antimony, semi conductors such as silicon, halogens like bromine, chlorine and fluorine: organic compounds, and even radioactive elements like uranium, thorium and radium. These are toxic substances.**
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- **If any battery storage caught fire or when any solar panels get broken, toxic metals will run into this beck at the centre of our village, causing significant if not catastrophic effects on the wildlife of the beck and further up the food chain for many years, making it fatal for wildlife and residents too.**
- **Scopwick beck also has a significant population of native water voles, an endangered species on the UK RED LIST.**
- **Water voles are protected under several Acts of legislation and the government website says to protect these mammals in all planning decisions.**
- **The beck also supports freshwater invertebrates, such as the caddisfly, soldierly, shrimp and the critically endangered white clawed crayfish which have flourished, along with eels, brown trout, bullhead fish, minoes, sticklebacks, flat worms. BAP priority beetle**

species and important freshwater plants such as the Marsh Marigold and water cress are also present.

- These sensitive indicator species will not tolerate broken solar panel chemicals, nor even the washing chemicals used to keep field mounted solar panels clean.
- All water from broken panels, battery storage accidents and cleaning will end up in the springs of Springwell development and in our streams and becks devastating indicator species and consequently the entire food chain.
- Further up the food chain as well as the water voles, otters, eels and various bird species like kingfishers, small egrets and herons reside daily along the beck side.
- The Heritage Lottery funded-project, which also involves the East Mercia Rivers Trust, The Environment Agency, Lincolnshire chalk streams project & the Wild Trout Trust, is restoring limestone becks in the Lincolnshire villages of Branston, Nettleham, Welton, Scopwick and Dunston.
- Not only will poisoning the beck and other water bodies be fatal but research has shown aquatic insects to mistake solar panels for water bodies and lay eggs on them.
 - This insect Behavioural Disruption is caused by horizontally polarized light from the panels attracting certain insects and thereby altering their natural behaviours and affecting local ecosystems.

I would like to also include people in diversity species. The village beck is the centre of our village

- Children and dogs play in the beck at Scopwick and Kirkby Green Ford, not just villagers, but people travel from a far to enjoy our beck, catching minnows and sticklebacks before returning them to the water.
- The beck brings customers to The Royal Oak which has tables along the becksides where customers paddle and dogs drink the water
- The Brownies and local primary schools use the beck for educational purposes.
- It is the centre of village activities with boat races at our Church Fetes and traditional Village show.

- The inevitable contamination of this water would obviously devastate the biodiversity, but also village life. It is associated with improving mental health especially lowering depression and anxiety levels.
- The breaking of the limestone rocks to put the large panels in will crack the rock, so rainwater that will quickly run off panels will soon flood the beck.
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Woodlands, Hedge Rows, Fields

Birds

- Breeding songbirds, Owls, Red Kites, Harriers and buzzards.
- Skylarks, Yellow hammers, black caps, 3 types of finches, to name but a few, many of which are protected are in abundance within the proposed area.
- Cuckoos return every year, another RED LIST SPECIES
- Swallows and Swifts (another UK RED LIST species) are in abundance swooping over the fields within the order of limits.
- Reason – the woodlands, old buildings and ponds within the proposed development give shelter to the large amount of insects (also vastly in decline in the UK).
- Bloxholm Woods Nature reserve adjoins the boundary of the proposed solar “farm”.
- Buzzards are known to breed in this woodland and other notable bird species include woodcock, tawny owl and nuthatch.
- 14 notable bat species also breed within the order of limits

Big issue with solar panels in fields:

- **Disorientation and Collisions:** Sudden glints can confuse birds, bats and insects, increasing the likelihood of collisions with the panels.
- **Misinterpretation as Water Bodies** triggering inappropriate behaviours such as misguided egg-laying or drinking attempts.
- Research has shown Panels in fields to be too narrow for owls and other birds of prey to hunt between
- **Increased Predation Risk:** Disoriented birds are more vulnerable to predators.
- Mitigation strategies must include careful placement of solar installations away from critical wildlife habitats such as this area and

may require additional design considerations to minimize disruptive reflections.

- Noise of installation – Adders (a protected species), grass snakes, slow worms are often seen within the proposed development are very shy as is much wildlife.**
- Fragmentation of populations leading to inbreeding of hedgehogs, hares, deer, - I could go on!**
- Almost 6 miles squared proposed. An area larger than Lincoln. Too big for wildlife to just “move”.**
- In a rich biodiverse area, full of springs, on good farmland.**
- This is not sustainability we all know that. It must not happen. Even if we all had free electric and money poured into the local villages, it would never be worth the destruction of habitat, farmland and village life.**
- The UK, destroying it’s own country, supporting China’s coal industry, the laughing stock of the world right now.**