

# Expert briefing for Imagine Futures workshop

17<sup>th</sup> Jan 2023

This is a resource on the [Imagine Futures website](#), part of the Workshop Toolkit. Experts briefed us in Climate Museum UK on the biodiversity issues facing the two wildlife sites we were focusing on, and the wider environmental issues affecting people, place and planet.

Experts presenting:

- Helen Baczkowska (Norwich Wildlife Trusts, Nature Recovery)
- Nick Brooks (International Climate Change Adaptation Specialist)
- Genevieve Rudd (Climate Museum UK Associate)
- Ella Firebrace (Systems Innovation Specialist, Former Systems and Innovation Manager at the RSA<sup>1</sup>)
- Will Stuart (Mousehold Heath reserve manager)

Chair: Bridget McKenzie (Climate Museum UK)



See [info on the two sites](#) and wildlife species under threat here.

**Question: What would happen if we did nothing to protect the Wensum Valley and Mousehold Heath?**

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<sup>1</sup> Systems innovation = bigger picture thinking and how all of elements of natural-human systems are connected. E.g. linking health, climate, biodiversity and education together and exploring how changes in one affects the others indirectly.

This includes doing nothing about bigger system disruption like air pollution or climate change.

### **Focus on Wensum Valley, Helen Baczkowska**

- Nature is changing because of climate change, and our solutions to climate change are closely linked to biodiversity loss.
- River Wensum is one of Norfolk's Chalk Streams
- Chalk Streams rise from deep rock under the ground. The water comes out very pure and has an even temperature because the water source temperature is stabilised. Water is filtered at the source so very pure, at least until we pollute it with sewage and farm runoff.
- All rivers in the UK are very threatened, due to:
  - Abstraction for piped water and irrigation.
  - Pollution, be that sewage, plastics, litter, and/or factory waste. Chalk streams especially are very fragile and very affected by pollution.
  - This is not a new problem. In late Victorian times the River Wensum through Norwich used to run red at times because of run off from the Madder fabric dye factory. The rivers are still full of pollution: lots of sewage and 'run-off' from fertilisers and pesticides on farms.
  - We have channelled rivers to run out to the sea much faster to try to reduce flooding, which is damaging and limits scope for natural processes to absorb extreme rainfall and sea level rise.
- The threats if we don't change:
  - Loss of many biodiverse species. This leads to cascades of ecosystem change, which will always impact people eventually. What impacts nature impacts us.
  - Because weather patterns are changing and sea level is rising, 'normal' flood protection strategies are no longer enough. Standard flood prevention strategy in the UK is to speed up the flow of rivers by cleaning out debris, straightening and dredging them.
  - We need to allow natural flood management to reduce flow rates in our rivers after extreme rainfall. The landscape can act as a sponge, but we need to let it by allowing flood plains to flood when needed, rivers to meander, and trees to slow down river flow.
  - Allowing flooding has a knock-on effect of producing diverse and biodiverse habitats. Flood plains are shallow, warm water which are rich in bird life, and the ditches that are left behind after the water recedes are sanctuaries for a plethora of snails and other invertebrates. This diversity of landscapes maintains resilience to change, including climate change impacts.
  - If we don't protect the river or manage it appropriately then we will lose species and the capacity of the river to adapt to changes and provide resilience to the coupled human systems that live with the river landscape.

### **The Western Link Road**

- (Extra context not given in briefing): Norfolk County Council wants to build a 3.9 mile "Norwich Western Link" across the ecologically rich Wensum Valley at a cost of at least £251m. This has been opposed by Norfolk Wildlife Trust, the Bat Conservation Trust, The Countryside Charity, Norwich Cycling Campaign, the British Dragonfly Society, the Norfolk Rivers Trust and Buglife. There is an ongoing campaign to stop this road being built.

- Norfolk Wildlife Trust supports the opposition to the Western link.
- The river is a Special Area for Conservation because it is a chalk stream which is very rare.
- The damage from the Western Link Road will include:

#### From building the road

- Carbon emissions from the building
- Noise pollution for animals and humans
- Damage to wildlife habitats
- Around the river all the associated habitats are also very important. Ancient woodlands & marshes.
- One of, if not the, biggest colony of Europe's rarest bat, the Barbastelle, is in the neighbouring woodland around that river. The road would go through the middle of this colony. The combination of the ancient woodlands for breeding and roosting with the marshes for predation is crucial.

#### From the road being used

- Carbon emissions from cars on the road worsening climate change
- Shading from big bridge on naturally open habitat
- Toxic run-off from road - petrol, diesel, oil, tyre wear, road wear.
- "We need to stop thinking about Nature as something that we can just move out of the way. What impacts on nature will ultimately impact us." Helen

## **What would happen if there was no help to protect biodiversity on Mousehold Heath? What are you doing now? (WS)**

- Mousehold is largest nature reserve in Norwich – 180 hectares
- Mixture of woodland and grassland
- Predominantly secondary woodland through natural regeneration since WWII
- Heathland is nationally important habitat
- Impacts of climate change on Mousehold:
  - There were 33 fires on Mousehold in 2018, a really hot year. This resulted in problems for the fire brigade – had to come up 60 times.
  - There was a big impact of these fires on associated species. After species have been lost from Mousehold it is very difficult for them to move back because it is a bit of an island surrounded by urban areas.
  - This hot period was repeated in summer 2022. Will thought it was unprecedentedly dry in the time he has been there (15 years). Impacts:
    - Heather dying back
    - Trees dying
    - Damage to gorse bushes
    - Four fires, including one very large fire on St James' Hill, which had an impact on invertebrate populations. In the future such fire could also impact birds majorly, but because of the timing (late August) most of the chicks had fledged.
  - Mousehold has sandy, well drained soil. Perhaps droughts have a more severe impact than other areas?

- Butterfly numbers were down in August 2022 – food plants dried up due to extreme heat (visual & anecdotal impact, data analysis to follow)
- Heavy rain, extreme weather, and storms
  - Tree damage
  - Heat and drought is stressing trees – contributes to disease spread.
- Phenology (timings)
  - More leaves on trees – and leaf fall later in the year. Increased risk from autumn storms.
  - Symbiotic relationship between birds and caterpillars, migration, and hibernation timings. These are likely to get out of sync, causing cascading impacts.

## **Impact of climate change on these sites and how they and we might need to adapt in future (NB)**

- Climate change is going to make the world a very different place, locally and globally
- UK: More and more extremes:
  - Drier summers
  - Wetter winters
  - Heavier rainfall events throughout the year
  - Drier phases and hotter temperatures = increased risk of fire. Requires management by cutting back dry vegetation.
  - Increased sea level. Intrusion of salt water into ground water and rivers, including the Yare and Wensum. This vastly changes the habitat.
- Hotter drier summers and more severe drought = reduced soil moisture, with effects on plant life that grows in these areas.
- Species that thrive today won't do so well in the future, while others will do better. This is true whether we are talking about Wensum, Mousehold or anywhere else.
- We can't just preserve things as they are because of climate change, we need adaptation, and understanding climate change impacts will be key
- Ecological systems are already stressed by climate change. We need to think really carefully about how additional threats and changes (e.g. road building) will interact with this
- Possible: increased demand for housing in habitable areas due to displacement from climate change. Increased demand for land for food as food systems are disrupted. These could both pose threats(?) to the two sites, and the City as a whole.
- Mousehold Defenders established in 1972 to oppose Land Enclosures on the heath. Mousehold has long history of site of social struggles which can inspire us to struggle for climate justice today:
  - 1549 – Kett's Rebellion had a base camp on Mousehold Heath. In protest of the enclosures of land, a protest movement grew and formed a full scale insurgency, eventually capturing the city of Norwich. The rebels based themselves on mousehold heath Norwich was the largest city in the UK at this time. Six weeks after the start of the uprising, the rebellion was crushed by Warwick's forces in a decisive engagement, with perhaps three thousand insurgents being killed.
  - In the late 18<sup>th</sup> Century the heath was much larger, stretching all the way to Woodbastwick. Nearly the entire heath was transferred from commons to private farmland through the acts of enclosure between 1799 and 1810. In

this process peasants were evicted and impoverished, having lost many ways of providing for themselves.

- In 1918 the Norwich Electric Tramways service from the city centre to Mousehold Heath was extended from Gurney Road to enable equipment and materials to run between Norwich railway station and an aerodrome on the heath.

## Impact of loss of wildlife sites on people (EF)

- Highlights how our human and natural systems are not separate but deeply linked. One key example of this is the impact of loss of biodiversity on health and wellbeing.
- We know that building over natural biodiversity we lose a lot.
  - Quality of life – it is really good for us to be out in green places.
  - Green spaces can reduce mental health problems and addiction, the effect of which is strongest for more disadvantaged households. Conversely, lack of access to green space contributes to mental health problems.
  - Air pollution and traffic noise is really damaging to our health.
  - Biodiversity loss and climate change often exacerbates inequalities. For example, many people in disadvantaged areas don't have as ready access to green spaces as people who live in more affluent areas. They won't have gardens; parks are likely to be further away; and might not have access to cars or the funds to travel to green spaces. This is true at a local/regional, national and international level.
- There is an increasing detachment between people and their environment. It is much more difficult to see the impacts of our actions when we are less connected. This is occurring through longer and more opaque supply chains, more time inside, more time on screens, and less requirement to interact with the natural world to survive and thrive.
  - By losing species and our environment we lose an enormous opportunity for learning.
  - By being with and in nature we can tackle some of this anthropocentrism and nature-human divide. This requires time and respect. Taking away the opportunity to spend time in green spaces prevents this organic, respectful and reciprocal relationship with nature from ever developing.
  - For example, a few key things that nature can teach us are:
    - The seasons and cyclical change
    - Loss and death, especially going into winter
    - Love, care and dedication.

## Futures: what next?

HB:

- The ability and interest to understand nature is something you learn from being out there and observing and spending time outside.
- We are going to need that deep understanding of habitats and taxonomy which is not taught at higher education. This is an unexplored area. This understanding and working with wildlife is so important and there are many opportunities for expertise that are not explored. Learn your local species, actively notice and help survey them!

EF

- There are loads of jobs around climate change and biodiversity.

- We are seeing and will see lots more migration and displacement of people due to climate change.
- Everything is connected. The way that subjects are divided up at school is not how the world works.
- We need to experiment with how we live our lives. Small changes can have knock on effects. There is a lot to do but getting started doesn't need to be overwhelming

#### NB

- Action comes from: awareness of risk and agency to act to mitigate that risk. There are several big risks but also opportunities to act on them.
- We need to think about complexities. E.g. the trophic cascades and ecosystem phenology disruption.
- There is not enough incorporation of local expertise in many areas. Need to listen to and create these local voices. Become an expert in the local area (like Will) and shout about it loudly!
- We have a disjointed planning system – natural environment and road building, for example, are considered separately. There are roles needed to lobby changing this and thinking about these problems as interlinked.

#### WS

- Knowledge, appreciation and relationship with nature is so important
- Get involved:
  - Volunteer e.g. cutting back dry vegetation to manage fire risk
  - Get involved doing surveys.

#### HB

- Engagement in the natural world doesn't have to be paid work. For most people time spent in nature and helping with management is voluntary. This is so worthwhile for you and for the natural world.

#### BM

- Activism is also really important. People who scale oil rigs, put their bodies on the line, and shout loudly are really important.

#### HB:

- Activism is so important and even if it doesn't directly make a change. It can be hugely cathartic.
- There is space for everyone in activist spaces, but it is important everyone engages with these crises.
- Direct action can be a proportional and effective response to the crises.