

Bridging the Gap Report

Emma Halliwell

Introduction

When a person living in Manchester decides they want to go to London, they have a few options to get there. They can get a train, or if they're feeling particularly brave they can go in a car and enjoy the inner-city traffic. Vice-versa, a person living in London can go to Manchester with relative ease. We can travel all over the country via the rail and road network. So, let's imagine there's an issue in London, say it's too hot, or someone is going around destroying homes, people can move away from the issue and move somewhere else (technically).

Now let's think about animals instead of people. Habitat loss and fragmentation has been affecting the landscape for years. Of the 182 nature reserves identified by Charles Rothschild between 1912 and 1915, only 19 had either lost little or nothing at all from the original reserve by 1997. The rest had lost part or a large amount of the original site, with 21 sites lost completely. This affects the wildlife by reducing genetic diversity (the number of genes within a population) and can leave a population vulnerable to disease. The fragmentation may also cause wildlife population to be vulnerable to predation and competition.

Climate change has also been affecting wildlife and causing a northward expansion – i.e. species are routinely being found in areas previously too cold for them to survive because temperatures are warmer. This also means species that require cooler temperatures have to move. It may also lead to greater competition for resources between species.

But without an equivalent to our rail and road network, how can the wildlife move from one area to another?

This is where wildlife corridors come in.

Wildlife corridors are areas of habitat that link two larger habitats separated by human structures (i.e. buildings, roads, etc) together. They can be stepping stones (small areas of habitat within a certain distance of each other) or physical strips of habitats that allow wildlife to traverse them and prevent populations from becoming isolated. These wildlife corridors can be essential to the survival of a species by ensuring that when one habitat becomes unsuitable due to competition from another species, predation or a lack of resources, they can move to another habitat, or simply by allowing individuals to move from one population to another and breed, preventing a loss of genetic diversity. There has been some debate and studies into whether or not they really work, but the general consensus is that when done right, they are valuable for species conservation.

Interestingly, the rail network mentioned earlier may provide a wildlife corridor. The UK has a vast railway system that includes disused railways – railways that are no longer used. Some of the bridges – either passing over roads, canals and other railways or under them – still exist and may provide a crossing point for wildlife. Also, the old lines, whilst not being used for trains, may have either been converted to footpaths or left to become overgrown with vegetation, and may potentially provide a path through urban areas. Focusing on areas within the Carbon Landscape (Wigan, Salford and Warrington) reveals a network of disused railways that could be of use. Wigan in particular appears to have a lot of disused railways, possibly due to its industrial heritage.

Methods

To identify old railway lines, I used the website <https://maps.nls.uk/geo/explore/side-by-side/#zoom=14&lat=53.4660&lon=-2.5512&layers=1&right=BingHyb> that allowed me to directly compare an Ordnance survey map from 1885 – 1990 to a modern Bing satellite map. These were cross-referenced with Google Satellite maps (for better clarity) and I was able to identify some railway lines that had been converted to walking routes, or had structures such as bridges still intact. I was also able to identify railway lines that would be unsuitable due to, for example, the line now forming part of a road, Atherleigh Way.

Site visits to promising lines were carried out at multiple areas. These were the National cycle route between Kirkless and Amberswood (which had formed the Whelley Loop), a disused railway bridge at Platt Bridge, the Cadishead Viaduct and two old railway bridges nearby, and the Latchford Viaduct.

The railway lines were mapped onto QGIS and compared to data on the locations of Sites of Special Scientific Interest (SSSI's), Sites of Biological Importance (SBI's), local wildlife sites (LWS), and local nature reserves (LNR's).

Potential Corridors

Whelley Loop

The Whelley Loop Line on the Lancashire Union Railway was built to allow freight trains to bypass Wigan and very briefly (for 3 months) had passenger stations at Amberswood and Whelley. The loop was closed completely in 1976, and is now a national cycle route. Between Kirkless and Amberswood, the line passes under Makerfield way and under an in-use railway. The path has scrub and hedges along it and would provide a corridor from Amberswood to Kirkless with little management needed beyond ensuring the right plants for invertebrates are present and cover for small mammals. There are a few issues in that just before Kirkless and just before Amberswood, there are roads (Belle Green Lane and Wigan Road) which at present have no cover for small mammals. There is the issue that the cycle route is used by the public, which may act as a disturbance and discourage use by wildlife. Surveys – i.e mammal trapping surveys – should be carried out to determine whether the path is used by wildlife.



Map showing the disused Whelley Loop line

Platt Bridge

Another potential wildlife corridor near to the Whelley Loop is on the line at Platt Bridge (Eccles, Tyldesley and Wigan Line – Tyldesley Loop Line). It connects to Low Hall Nature Reserve and could provide a corridor to nearby flashes (Horrock’s flash and Turner’s flash). A railway bridge over the road is still in place over Liverpool Road, however the next bridge that had been part of the railway, over Walthew Lane, has been removed. Added to that, the extant railway nearby acts as another barrier to the SSSI’s, SBI’s nearby. It would be interesting to see if providing a wildlife corridor would have a positive effect in the terrestrial wildlife in Low Hall Nature Reserve and the nearby flashes.



Map showing the disused railways around Platt Bridge

Cadishead Viaduct

The Manchester ship canal acts as a barrier for terrestrial wildlife so a wildlife corridor crossing it would potentially be of great value to conservation efforts. Currently, bridges for the road and rail network already exist but may not be suitable for wildlife use. However, two disused railways cross the canal and their bridges, whilst structurally damaged, are still intact.

The first is the Cadishead Viaduct, which was part of the Cheshire Lines Committee Glazebrook to Stockport Tiviot Dale line.

The line technically existed before the Manchester Ship Canal was built, however due to the need for the line to be higher to allow ships to pass underneath, the line was rerouted and the original line was shut. So, as well as the Cadishead Viaduct and the bridge over Cadishead Way, there are also 2 railway bridges over Liverpool Road – one belonging to the original line, one from the rerouted line leading to the viaduct. The second line was shut after the Cadishead Viaduct required expensive repairs – which were deemed too costly to be worth doing, so the line was shut in the 1980's.

The bridges over Cadishead Way and Liverpool Road are already covered in vegetation and scrub, so may already be used by wildlife. They are used as a footpath by the public. Not outlined on the map below is that at the northern end of the line, over the railway (currently in use) is New Moss Wood, a Woodland Trust owned woodland that has potential wetland habitats. Added to the SBI on the other side of the canal, this corridor could have a lot of potential for wildlife conservation. However, besides the main issue of the Viaduct – it's a metal structure that currently provides no cover for any wildlife attempting to cross it until they reach the paths at either end – there is the issue of the extant railway before New Moss Wood. There is a bridge over the railway, however it is used primarily by vehicles and currently has no cover for wildlife. Any project to create a wildlife corridor would need to address these issues. Perhaps some animals already cross the railway, and any project would only have to focus on creating a suitable habitat on the path from the Viaduct towards New Moss Wood.



Map showing the Cadishead Viaduct

Latchford Viaduct

Another potential crossing over the Manchester Ship Canal is the Latchford Viaduct. This line was also shut in the 1980's due to the structural weaknesses of the bridge being too costly to repair. However, the bridge itself, like the Cadishead Viaduct, is still there, but it is closed to trains (and the public) due to the structural damage presenting a risk.

The Latchford Viaduct is close to Woolston Eyes SSSI, roughly 1km, so any project to create a wildlife corridor using the Latchford Viaduct would also require suitable habitat along the edge of the canal.



Map showing the Latchford Viaduct line

Species

Records from the Carbon Landscape Project show that there are a variety of animals that make their homes within its boundaries. These include a vast array of butterflies, dragonflies, beetles and other insects, amphibians such as the Great Crested Newt, reptiles such as common lizards, birds, and mammals such as red foxes, badgers, roe deer and more.

These records only show species data within the Carbon Landscape Project, however the railways lines obviously extend outside of the project, so in order to see where species are outside the project boundaries, the NBN atlas tool on QGIS was used. These records were not as precise as the Carbon Landscape data, however they were still valuable. Using this tool, I was able to see that records for Roe deer at other sites along the Whelley Loop Line – the Carbon Landscape data included records of Roe deer at Amberswood. According to the AA, more than 42,000 deer are killed in road collisions every year. These would cost drivers in terms of injuries to themselves and passengers and in damage to their cars. Safe wildlife crossings such as green bridges might help reduce the number of deer-vehicle collisions.

Green Bridges

Wildlife crossings are structures that allow the safe movement of animals across man-made barriers such as roads, canals and railways. These structures can include underpasses, tunnels or bridges. For the purpose of this report, I will focus on bridges that allow wildlife to safely cross a man-made barrier and refer to such structures as green bridges, and refer to the routes that wildlife could potentially take as wildlife corridors. So, green bridges will be part of wildlife corridors but wildlife corridors do not have to contain green bridges.

There are points along old railway lines where bridges used to be located but have since been taken down, for example on the Whelley Loop at Belle Green Lane and Wigan Road. To allow movement of wildlife over these roads it may be beneficial to create green bridges at these locations. However, it has been reported that green bridges have cost from £2.18 million to £10.56 million to create, so putting a green bridge anywhere we want would be erroneous. Instead, now that I have identified potential locations for wildlife corridors, it would be beneficial to carry out surveys to identify if they are currently used by wildlife, what species live at the sites along the corridors and possibly carry out genetic studies into the populations. This would allow a firmer idea of where a green bridge may be the most needed/effective, and continuing the studies after installation of a green bridge would show what impacts (positive or negative) the bridge would have – an important note as most studies are only carried out after the installation of a green bridge and not before.

Research suggests that creating a green bridge out of an existing structure would be less costly than building a new bridge, however both the existing structures over the Manchester Ship Canal (Cadishead and Latchford Viaducts) are disused due to the need for expensive repairs, so it is entirely possible that the repairs could be as expensive as building a new bridge. Building a new bridge rather than repairing an old one has the advantage that it can be built wherever is thought best rather than where the existing bridge is, but as stated can be quite costly.

Conclusion

I think that one of the most promising locations for a green bridge would be at the Cadishead Viaduct as there is a structure already in place, albeit one that needs repair work. The other advantage is that it already connects to a potential wildlife corridor – there is a Site of Biological Interest/Local Wildlife Site on one side of the Manchester Ship Canal, and the railway line leads to New Moss Wood - a Woodland Trust-owned site that comprises of wet woodland and peatland. However, there is interest in the viaduct from a local organisation – the Hamilton Davies Trust – who aim to open the bridge as a multi-use pathway or even as part of a heritage railway line.

Another promising location would be the Whelley loop line that connects Amberswood and Kirkless with a national cycle route that also leads up towards Haigh Woodland Park. As stated, records have shown that records of roe deer at sites along this route, so a green bridge providing a safe crossing point for deer might be a worthwhile investment to reduce the costs of deer-vehicle collisions. However, if building green bridges proves to be too great a cost, it may still be worthwhile to manage to cycle route to ensure suitable vegetation for animals along the pathway.

With both of these potential corridors I would recommend carrying out surveys to identify what species are at the sites along the corridors, what species might be within the corridors themselves, and if possible genetic studies into the populations at the sites. If a green bridge is built, or any management carried out on the corridors in an attempt to enhance

biodiversity/usage of the corridors, further studies can be carried out to determine the effectiveness of the corridors.

Other lines may be potential corridors, such as the railway through Platt Bridge as it originally went over an in-use railway and had two bridges over the nearby roads, providing a potential route from Low Hall Nature reserve to wildlife sites over the railway. However, only one of the bridges over the road still exists, and the bridge over the railway was removed, so two structures would need to be added to create a wildlife corridor. Although with this route, as with all the routes, ownership on the land would greatly influence what could be done.

As mentioned, Wigan has a rich industrial heritage that may have been the root cause for the number of railways within the area. It would be interesting if all the disused railways within the UK could be mapped and compared to local wildlife sites etc, however that would be an ambitious undertaking.

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