Exploring Greater Manchester

a fieldwork guide

Series editors: Paul Hindle
and Cathy Delaney

Stretford Meadows and Urmston Meadows: landscapes of the Anthropocene

Consequences of urbanization and new opportunities for urban nature.

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Aims: This walk crosses terrain that is full of landforms created or modified by human action and provides multiple examples of how nature responds to changes caused by urban activity. It explores two significant pieces of the Borough of Trafford's open greenspace, Stretford Meadows and Urmston Meadows, which have been identified as Biodiversity Opportunity Areas in the Trafford 2021 Local Plan. They are part of Trafford's natural capital and thus contribute to the possibility for Biodiversity Net Gain and the delivery of the ecosystem services that support all life and help mitigate the impacts of climate change. The walk provides opportunities to examine:

- Local floodplain and land restoration ecosystems;
- Local factors in ecological development and change;
- Drainage basins and flooding, especially the consequences of the embanking of rivers and the shifts of uncontrolled river meanders;
- Issues of protection of urban infrastructure from rapid river channel change;
- Recreational use of accessible local sites;
- The role of community organisations and national conservation bodies in local sites in urban areas.

Starting point: Entrance to Stretford Meadows at the end of Poplar Road, Stretford just west of St. Matthew's CofE Primary School, M32 9AN. Poplar Road is approximately a kilometre from the Stretford Tram stop. There is a bus stop on Chester Road near Poplar Road for bus services 245 (Altrincham to the Trafford Centre, half-hourly) and 263 (Altrincham to Manchester Piccadilly Bus Station via Hulme and Oxford Road, every 20 minutes).

Finishing Point: The Roebuck Pub, Church Road, Urmston, Manchester, M41 6HD. Bus Route 18 between Eccles and Manchester Airport stops hourly near the pub. 500 metres up Chassen Road is Chassen Road Station which has trains to Manchester approximately once every two hours. More frequent buses and trains are available in Urmston, 1.2 km to the east along Church Road. Alternatively. a 1.2 km walk westwards along Church Road takes you to Flixton Station (again infrequent trains) with bus routes along Carrington Road (247 to the Trafford Centre and trams hourly; 255 to Manchester Piccadilly Bus Station half-hourly).

Estimated time: 3-4 hours.

Related Walks: This walk links to two walks further upstream along the River Mersey in south Manchester that are also included as parts of the Manchester Geographical Society's 'Exploring Greater Manchester' Series:

- Didsbury to Chorlton Water Park and Jackson's Boat: transformed landscapes in an urban green/blue corridor (PDF, 10MB)
- **S**ale Water Park, the River Mersey and Bridgewater Canal Aqueduct (PDF, 7.9MB)

These are available at: https://www.mangeogsoc.org.uk/publications/exploring-greater-manchester/

Maps: OS Explorer Series Sheet 277 Manchester & Salford.

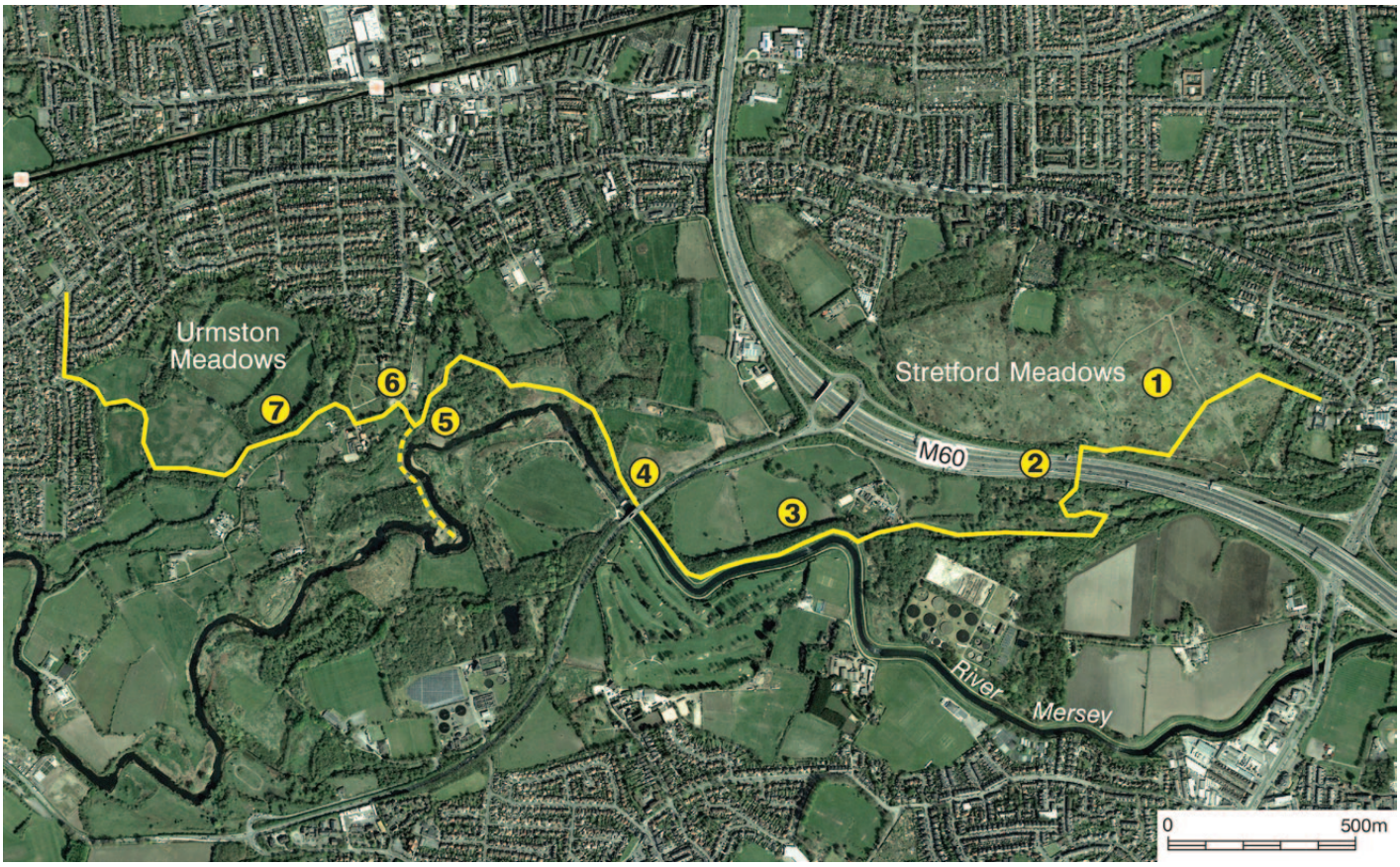

Figure 1: Map of the route from Poplar Road in Stretford to Urmston Meadows, showing the positions of the stops mentioned in the text (image©Google Earth).

The Walk

> Walk past St. Matthew's Primary School on Poplar Road to the playground park area and continue straight ahead.

Stop 1: Stretford Meadows

Beyond the children's playground (Figure 2) the grassy slopes are the surface of the former Streford landfill site (Figure 3), where the dumping of waste ceased in 1986 and was then capped by a clay layer on which some tree planting occurred. Between 2010 and 2017 Ylem Energy Limited used the methane released by the decomposition of waste to generate nearly 120 MWh of energy.

> As you emerge from the wooded section of the path, take the path going up hill to the left (Figure 3). When you get to the flat summit area, look around for signs that until the mid-1980s this was active waste disposal site. You should see various pipes projecting from the ground as you walk over the site, many are related to monitoring the gas levels.

In December 2012 the Greater Manchester Waste Disposal Authority transferred the ownership of the site, along with 17 other closed landfill sites, to Landcare (Manchester)

Figure 2: The playground at the end of Poplar Road.

Figure 3 The paths into Stretford Meadows: take the path to the left going uphill.

Limited, a company specialising in providing 'managed exits' to varied blue chip clients in the UK and Europe, seeking to divest themselves of redundant liability 'brownfield' sites.

Trafford Council's Strategy for the Stretford Meadows site includes:

- The provision of attractive, accessible links from surrounding residential areas;
- The creation of a strategic route encouraging cycling and walking, linking urban and countryside areas, that is highly accessible by many Trafford residents;
- The inclusion of measures to secure improvements to biodiversity, for instance by enhancing the area adjacent to the existing wetland to encourage reed buntings, improving meadow habitat for skylarks and supplementing naturally regenerating oak trees;
- Tree planting to create woodland to help tackle air pollution and remove carbon dioxide from the atmosphere.

The Trafford Local Plan has several local designations for Stretford Meadows in terms of green infrastructure, including natural environment asset, landscape character and open space. Landcare (Manchester) objected to these in 2014 and has indicated that it might wish to create an industrial warehousing area on approximately half of the site, with direct access from the M60. Some local people have expressed firm opposition to this. The present status of any non-open space land use proposals is unclear.

> Follow the path to the flat summit and turn half right along the summit level and then after some 400 m turn left downhill towards the motorway. Eventually you will reach a path running parallel to the motorway. This is part of the Trans-Pennine Trail which the route follows for the next two kilometres. Follow the Trans-Pennine Trail to the right and on to the footbridge over the motorway.

Stop 2: The Pegasus Cable Stayed Footbridge

This cable stayed pedestrian bridge (Figure 4) was constructed in 2006 when the motorway was widened. It replaced a gloomy subway under the original motorway. The bridge offers good views over the motorway and the surrounding area.

> Cross the bridge and follow the path round the bends and down to the level of the Kickety Brook that runs into the Ousel Brook along the edge of the Mersey floodplain. The surrounding narrow stretch of woodland is a haven for wildlife (Figure 5).

Part of the land near here is used by the Stretford sewage works and some other enterprises, but in this stretch of the Trans-Pennine Trail these activities are hidden by trees.

Figure 4: The Pegasus Cable Stayed Footbridge across the M60.

Figure 5: Woodland along the Ousel Brook and the Trans-Pennine Trail.

Figure 6: Riverbank Coffee.

Figure 7: Cricket sight screens at Ashton-on-Mersey Cricket Club.

Stop 3: The Mersey River Embankment

Eventually, the Trail leaves the woodland and emerges on the bank of the River Mersey. Close to this point is an interesting local enterprise, Riverbank Coffee (https://riverbank-coffee.com/), run by the owners of the local farm. It became particularly successful during the COVID-19 pandemic when normal eating places were often closed. It is visited every day by dog walkers, cyclists and families (Figure 6).

From the riverbank, looking across the river you can see the sight screens and buildings of the Ashton-on-Mersey Cricket Club (Figure 7), which are in a floodable area. However, the river embankments protect most of the playing fields and the nearby Ashton-on-Mersey Golf course from all but the most severe floods (Figure 8).

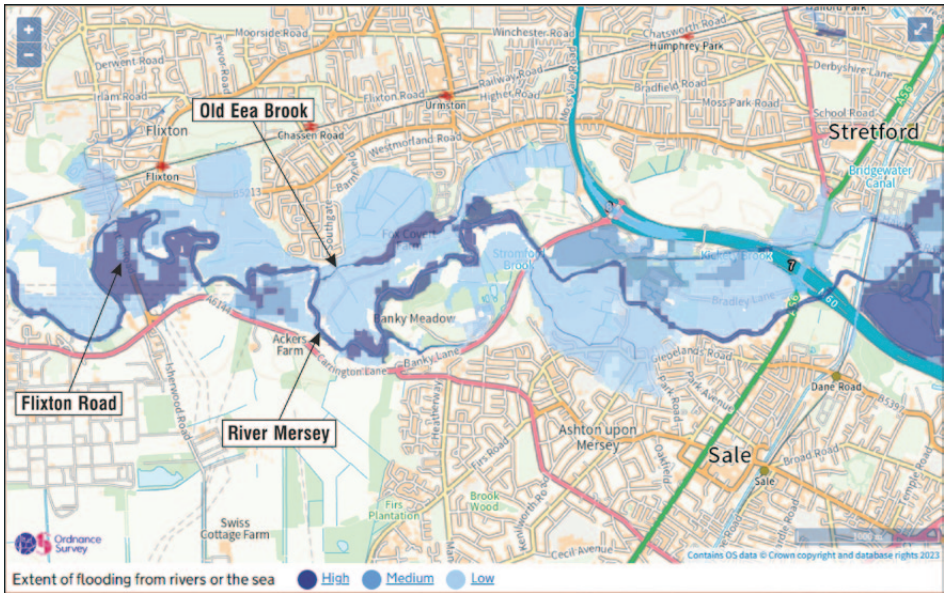

Figure 8: Flood risk map for the Mersey Valley from Flixton to Stretford. Note how the high-risk zone covers Flixton Road, running south from Flixton across the floodplain. Floodwaters across that road may lead to its temporary closure every one or two years (Figures 9 and 10). [These locations are beyond this walk but are included to show how floods disrupt daily life.]

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Figure 9: View from Flixton Bridge of the road flooded in 1986, note the flooded fields on both sides of the road.

Figure 10: The River Mersey at Flixton Bridge at the same time.

> Continue along the Mersey embankment in a westerly downstream direction. Soon you will see the A6144 Carrington Spur road bridge across the river. Just below the bridge are the Ashton Weir and the Millennium Footbridge, built to mark the beginning of the Third Millennium CE, that carries the Trans Pennine Trail across the River (Figure 11). Stay on the north bank and look at the weir and small brick structure nearby.

Stop 4: Ashton Weir

The brick structure houses the Ashton Weir river level recording equipment that provides a continuous record of the river flow. To check the river level on the day of your visit and how it has varied in the five previous days, go to: https://check-for-flooding.service.gov.uk/station/5008?direction=u

The basic data for the Mersey at this point are:

- **The extreme range** of the River Mersey at Ashton Weir is expected to be between 0.29m and 4.15m. It has been between these levels for 90% of the time since monitoring began in 1958.
- **The typical level** of the River Mersey at Ashton Weir over the 12 months prior to March 2023 was between 0.25m and 1.03m. It had been between these levels for at least 151 days in that period.
- **The highest actual level ever recorded** at the River Mersey at Ashton Weir is 3.91m, reached on Thursday 21st January 2021 at 4:00am.

Look at the river and estimate where a water level of about 4 metres would rise to.

The bed of the river below the Weir is several metres lower than above the Weir. This is in part due to the change in base level for the river due to its diversion into the Manchester Ship Canal about a kilometre northwest of Carrington in 1895. Notice that the embankments end here and the banks of the river are now more natural. In this next part of the walk we shall see what these "natural" banks imply.

> From Ashton Weir continue along the north bank of the river taking an uphill path through woodland on to an open meadow, keep on the path to the left-hand side of the meadow, but do not go down towards the river through the trees. You may catch glimpses of the river and if so, you should look at what is happening to the river banks: are they being eroded by the river?

Figure 11: Ashton Weir and the Millennium Footbridge.

The path eventually leads into a wooded area with a fence to your right. Continue along that path. Soon you will see the land on your left dropping down to a lower wooded area where there is a considerable amount of exposed mud below the trees. You are starting to walk around the outer edge of an abandoned meander of the River Mersey.

Stop 5: The Urmston meander of the River Mersey: a classic meander cut-off

> The edge of the former meander becomes more obvious as you continue along the path and finally it emerges from the trees and meets a path coming from the right. Turn left at this junction and walk up to the edge of the river bank. You can see a pylon across the bank and the way the opposite bank of the river has been protected by some concrete work.

The pylon is part of a series of powerlines relating to the substation adjoining the Carrington Power station, 3.5 km west of this site. This powerline runs east along the Mersey Valley to Stockport. There are two powerlines here, one on the north side of the flood plain and the other, the southern powerline, routed through the centre of the floodplain. Using the open space along the flood plain for the route of the transmission line was probably a sensible idea, but the rate of change to this meander near Urmston was clearly not anticipated (Figure 12). This original pylon was frequently surrounded by floodwater (Figure 13). In every high flow, there is erosion of the outer bank and deposition of sand and gravel on the inner banks of the meander bends.

The rivers running across the low-lying areas west of the Pennines all have meanders that continue to shift, but this meander on the Mersey, just downstream of the built-up area of Greater Manchester, has changed particularly dramatically since the 1970s (Figure 12). Since the 1920s the former meander loop has shifted a little downstream. In the 1980s the outer bank of the loop near the footpath was still eroding, with rotational slumping of pieces of the bank. However, the initial cut off began to develop before 1980 and was completed during the following decade. In the 1980s the old meander loop still had water in it and had all the characteristics of a cut-off ox-bow lake. Since then, the main channel has continued to shift southwards, eroding the southern bank so much that an electricity transmission line pylon had to be replaced by a new one further from the river. That replacement pylon is now at risk as the river channel continues to migrate southwards (Figure 14). In the 1990s, the concrete bases of the original powerline could be seen in the middle of the changed main channel of the river.

Protecting the pylon is critical for both safety, electricity supply reliability and cost (around £0.5 million to relocate a pylon, Da Luz *et al.*, 2015). Concern has been expressed that as climate change produces severe storms more frequently, the bank erosion here may threaten not only the present pylon but others along this stretch of the river between Ashton Weir and its confluence with the Ship Canal. Additional bank protection work was begun in 2017; this may have to be reinforced in the near future.

This new, replacement pylon has been identified as a problem in an assessment of possible future erosion under a changed climate. Arguing that the electricity network sector cannot quantify the future erosion risk posed to towers, and the vulnerability and resilience of power line assets to future changes in the frequency and severity of storms, Feeney *et al.* (2022) examined this reach of the Mersey. Their modelling showed that the present pylon is threatened by

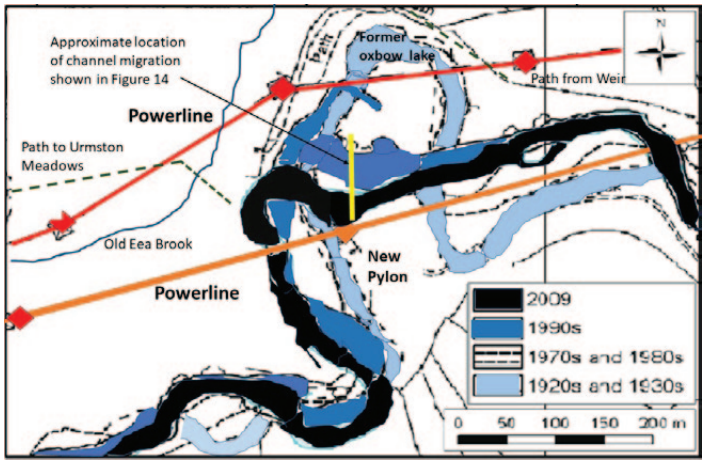

Figure 12: Changes in the position of the Meander of the Mersey at Urmston (adapted from Da Luz et al., 2015).

Figure 13: A pylon surrounded by water in the 1996 flood at the Urmston meander. Such floodwaters deposit fine silt on the surface of the floodplain, helping to build up the layers of sediment into which the river is now eroding.

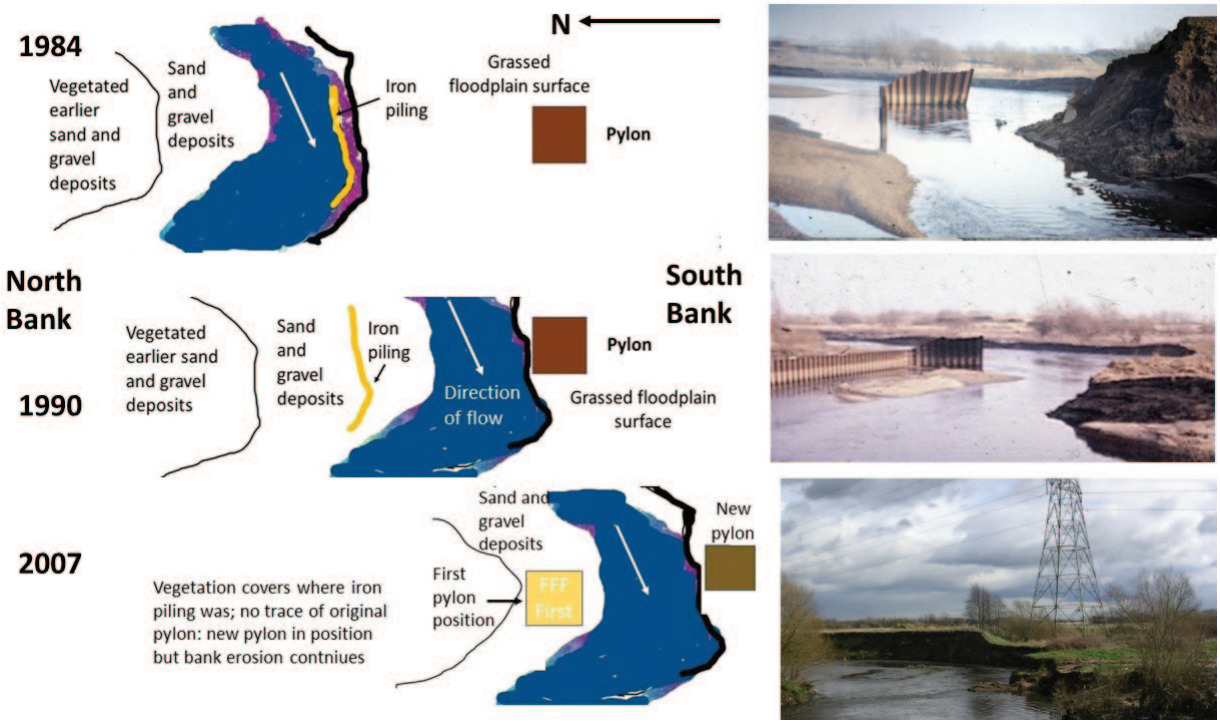

Figure 14: Diagram to show the changing position of the Mersey low flow channel and the erosion of the south bank of the Urmston meander between 1984 and 2007. In the first decade the iron piling that was close to the south bank in 1984 became part of the north bank. All traces of the original pylon disappeared and further erosion shifted the low flow channel further south and the iron piling had become incorporated into the expanded gravel bar on the north bank. Further erosion southwards in the next 17 years saw vegetation covering the area where the iron piling was and the southern bank getting closer to the replacement pylon. What is striking about this situation is that the structures created by humans remained in place while the river shifted relentlessly towards the south. The channel shift is a natural process, but its speed and magnitude are related to what humans have done to the river and its tributaries upstream.

significant overbank deposition and should be classified as being at severe erosion risk. Similar issues were found at two other pylons further down the 3.5 km reach towards the confluence with the Ship Canal. Future bank erosion locally could be reduced by installing more bank protection of the type shown in Figures 15 and 16. More comprehensive concrete and masonry could be installed, but such installations are costly. Another measure could be to reactivate the space in the old cut-off meander, providing more space for flood water. The space is now wooded but does fill with floodwater at high flows. There are strong nature conservation arguments for keeping the old meander in its quasi-natural state. Hard engineering solutions are also prone to failure if installed incorrectly and concrete and rocks can be corroded and loosened by intensive water pressure, as is apparent in the river embankment walls between Stretford and Didsbury. In addition, the invasive plant species including Himalayan Balsam and Japanese Knotweed must be handled carefully in accordance with UK law. Thus there are a few options to be considered (after Feeney *et al.*, 2022):

Further reinforcement of eroding banks;

- Use the space in the old cut-off meander to dissipate higher energy flows;
- Increased flood storage upstream of Ashton Weir;
- 'Slowing the flow' in the upper catchment areas including more stormwater holding tanks in the urban area and barriers in upland tributary streams.

Figure 15: Bank protection work in 2018.

Figure 16: State of the bank protection work in April 2022 showing the proximity of the present pylon to the edge of the bank.

Overall, 'space for water' is essential. The floodplain naturally provided this in the past, but now all structures in the flood plain both reduce that space and are themselves at risk. Global heating due to greenhouse gas emissions is increasing the likelihood of extreme rain events and all floodplain installations need to be assessed for their vulnerability to such events.

> After observing the pylon and related channel shift, continue downstream on the north bank, going round the bend to where you can see the eroding edge of the north bank (Figures 17 and 18).

Here the process of bank erosion is clearly visible. The river undercuts the bank, with active slumping of pieces of the original grassed meadow which slide downslope towards the river. Much of the bank has become overgrown by the invasive Japanese Knotweed and Himalayan Balsam.

This is a vivid reminder of how channels change under natural conditions. However, it is highly probable that two factors affect the magnitude and rate of bank erosion here:

1) the rapid runoff of extreme storm water from the paved and roofed surfaces of the city upstream and the swift passage of the storm flows through the embanked reaches within the city which creates great erosive energy in the flows; and
2) the much reduced sediment sources in the embanked reaches of the river immediately upstream which are generally vegetated and protected. With relatively little sediment to be entrained until below Ashton Weir, the river has a high sediment carrying capacity in this reach at Urmston and readily erodes the unprotected banks.

Figures 17 and 18: Slumped soil and turf at the north bank Urmston meander in 2012 and 2022 (The bank has receded almost two metres in ten years).

Part of the sediment eroded from the banks gets deposited on small sand and gravel bars within the channel. If you start to look at these channel deposits you will find all kinds of domestic and industrial waste material, including abundant plastic debris. Among the sediments are heavy metals such as copper zinc, lead, chromium and arsenic, some of which will have been river channel sediment since the heavy industrial revolution activity and poor waste management of the nineteenth century. While high concentrations would be expected near major manufacturing areas, on tributaries flowing through mill towns, surprisingly, even in the semi-rural landscape around Ashton on Mersey and Urmston, concentrations of lead and zinc in the sediments are as high as those in the old industrial areas of the catchment (Hurley *et al.*, 2017). The polluted sediments are swept downstream in floods and others are deposited on the gravel and sand bars as water levels fall.

These problems of pollution from upstream are not new. A note in the medical journal 'The Lancet' in October 1898 stated that the waste from the Moss Side sewage works "is at present a great nuisance to Urmston" and that its treatment should be improved.

The active sediments in the river channel also contain much plastic material. Examination of the microplastic particles (particles of plastic that are less than 5 millimetres in size) found here and at other locations in the Mersey and Irwell catchments (Hurley *et al.*, 2018) has shown that concentrations are higher than those reported for river sediments elsewhere, probably reflecting the long period of industrial waste entering the river and the continual washing out of plastic waste through storm sewer overflows and direct field drainage. (Macro)plastic ingestion by freshwater fauna is widespread (Van Emmerik and Schwarz, 2020) and could eventually reduce the fish numbers in the Mersey.

However, although the treatments have been greatly improved, modern pollution problems remain severe. Every high flow brings large amounts of microplastic particles to Urmston. While such flows act as powerful flushing agents, removing accumulated plastic debris, they also drop more as the flood subsides.

In addition to the direct impacts of urban activities, this section of the Mersey Valley has also been greatly affected in the past decade by invasive plant species. As indicated above, Japanese Knotweed, Giant Hogweed and Himalayan Balsam are now widespread along the Mersey Valley below Ashton Weir (Figure 19). Visitors are asked to take care about inadvertently carrying seeds on their clothing and shoes to their gardens, parks and other open spaces.

Figure 19: Himalayan Balsam and Japanese knotweed around the path to "Urmston Beach".

> It is possible to follow a narrow path along the bank of the river at the edge of the woodland shown in Figure 17 and come to the next major meander. There is a small sand bar on the inside bend of this meander which some people use as "Urmston beach" for sun-bathing (Figure 20). However, to continue the walk, it is advisable to return to the point at which you first had a view of the eroding meander, near the information board and take a different route westward.

Figure 20: The "Urmston Beach" gravel bar on the inside of the next meander curve of the Mersey at Urmston.

> At the river bank near stop 5, turn away from the river by the notice board and proceed towards a small bridge across the Old Eea Brook.

Stop 6: The Old Eea Brook: a Yazoo stream

Like the Ousel Brook seen earlier in the walk, the Old Eea Brook is a tributary stream that runs parallel to, and within, the floodplain of the Mersey for almost two kilometres, before eventually joining it about 500 metres south of where this walk reaches the houses of Riverside Drive. The flood map (Figure 8) shows the Old Eea Brook clearly, with a large part of its course indicated as at high risk of flooding. The map also indicates the street named Southgate, and the confluence of the Brook with the Mersey is a short distance south of the southern end of that street.

The global example of this type of floodplain drainage is the Yazoo River, that runs roughly parallel to the lower Mississippi River for about 300 km through the floodplain, above the confluence with the main river at Vicksburg in the southern USA. The name comes from that of a former American First Nations people, the Yazoo clan.

> Continue across the Brook and upslope to the road. Turn round and look back towards the Mersey. Imagine what it might look like during a major flood (Figure 21).

Figure 21: View from the access road towards the Old Eea Brook bridge with the River Mersey at high flow beyond after a flood in 1996. The Mersey is at bankfull stage. The line of debris across the track in the foreground represents the highwater mark of that flood.

> Turn back to the road and walk to the left (westwards) along the lane, which provides access to farms and other businesses on the floodplain. Walk along this land until you reach a T-junction with a similar lane. Turn left here and continue for about 300 metres with farm buildings behind a hedge on your left. Look for a metal gate (Figure 22) on the right-hand side of the lane and a sign pointing to Urmston meadows (the sign may be partly hidden under foliage).

Figure 22: The entrance gate into Urmston Meadows from the lane.

> Go through the gate and walk straight ahead through a small, wooded area (Figure 23). Keep going forward until you reach a junction with path running from right to left. This is the main walking route around Urmston Meadows. Turn left and follow the track under the trees.

The broad path offers both woodland settings and views across open meadows (Figure 24). Urmston Meadows continue to have fenced fields for grazing animals, as well as the open fields. Many fields contain diverse species of meadow plants which, together with the wooded areas, provide diverse wildlife habitats.

Figure 23: Path into Urmston Meadows through woodland.

Stop 7: Urmston Meadows: planning for people and wildlife

Urmston Meadows provide an excellent example of how partnerships between local governments, national conservation NGOs and community groups can achieve effective improvements in biodiversity and opportunities for wildlife. The Urmston Meadows Action Group (now the Urmston Meadows Conservation Society) has been working to transform local woodland and encourage the nesting of endangered Willow Tits with the help of Red Rose Forest (now City of Trees: https://www.cityoftrees.org.uk/in-action) and the Lancashire Wildlife Trust. The Urmston Meadows Action Group was created by Red Rose Forest with support from Trafford Council as part of the Trafford Countryside Management Partnership (https://democratic.trafford.gov.uk/documents/s1405/Trafford%20Countryside%20Management%20Partnership.pdf), to get investment in the Urmston Meadows and to promote and assist community involvement in practical action to improve wildlife habitats and facilities for public access.

Figures 24: An open meadow with signs of self-seeded trees in the distance.

Figure 25: An open meadow with signs of self-seeded trees.

The initial Willow Tit habitat improvement project in the meadows was for a species whose UK population declined by 87% between 1970 and 2005, due mainly to habitat loss. In many parts of England, the Willow Tit has disappeared almost completely. It is thought that this is due to a variety of factors, including competition from other birds, predation and habitat loss. The Urmston Meadows work aimed to transform local woodland and encourage the nesting of endangered Willow Tits, with the help of Red Rose Forest and the Lancashire Wildlife Trust. The Willow Tit has very specific habitat requirements and is the only English Tit species to create a new nest hole each breeding season. It nests around a metre above ground in standing deadwood and prefers scrubby areas where it can feed easily (Fleming, 2015).

Other work has involved clearing vegetation from around pond and ditch edges to allow more light to the water. This should increase the biodiversity of pond life in Urmston Meadows. Meadow grasses have been cut using scythes and Himalayan Balsam has been pulled out with the aim of increasing wildflower diversity in the meadows. Self-seeded ash trees from the woodland edges of some the meadow areas have been cut down to keep the area as open biodiverse meadows (Figures 24 and 25). Much more information and many photographs of the flora and fauna of Urmston Meadows can be found at: https://www.facebook.com/urmstonmeadowswildlife/.

> Continue along the path to a junction with a wide track going to the right. Follow the track to the right. It leads westward to a gate on to Riverside Drive, but before getting to the gate, look for a signposted path going to the right near the information board shown in Figure 26. The route follows the dotted line on the map on the board.

A short distance along the path you can sees a small weir on the stream on the left. This is a field drain, one of several in the meadows, taking excess water from the meadow into the Old Eea Brook some 250 metres to the south. However, the water table under the meadow needs to be kept sufficiently high in dry weather to support the plant life in the meadows and woodlands. The weir therefore ensures that there is water in the drain most of the time, preventing the water table from dropping too far.

Figure 26: The notice board near the path round Urmston Meadows.

> Proceed along the path adjoining the drain until you come to a path turning off to the left. Take the path to the left which takes you out to Riverside Drive. Turn right and then right again on to Southgate and you will soon come to Church Road and the Roebuck Inn where this walk ends.

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