

THE MALAGO

One of the most important environmental features in Manor Woods Valley is the Malago. It brings important ecological variety and benefits to the area, being attractive to aquatic invertebrates and small fish, the birds that feed on these and as a haven for small numbers of over-wintering waterfowl.

The Malago is a stream (or small river) that rises on Dundry Hill. Here, rainwater percolating through the capping layer of permeable limestone, then encounters an impervious layer of clay, and so emerges in a spring-line all along the northern slope of the hill. An unprepossessing field drain emerging from the hillside just beneath Dundry Church is the furthest upstream portion of the longest tributary of the Malago.



Source of the Malago

On leaving the hillside, several small streams join to form a more purposeful watercourse – the Malago. On entering the edge of the South Bristol conurbation, the watercourse is directed underground down culverts, only emerging north of Whitchurch Lane in Bishopsworth. From here it flows between engineered banks at the bottoms of back gardens, until it emerges into Manor Woods Valley. Once in the latter area it is allowed to flow in a relatively natural manner for a few hundred metres.

Manor Wood Valley contains a range of habitats, including several types of woodland, areas of scrub, large and small wildflower meadows, an orchard, and of course, the Malago. The section of the latter within the reserve has meanders with rocky substrates, straight sections with silty bottoms, areas of slack water and areas with freely flowing water. These different factors encourage a range of flora and fauna.

The entire length of the Malago within Manor Woods Valley has ancient and 'new' woodland on its southeast bank and amenity grassland and blocks of scrub/scrub woodland on its northwest bank. Ash and English Oak, with Sycamore, Crack Willows and occasional Alders dominate the tree canopy associated with the watercourse. Hazel, Hawthorn and Field Maple, with some Holly, Blackthorn and Dogwood, dominate the shrub layer in the woodland areas, where, in spring, Ramsons dominate the ground layer, along with Ivy.

Along the streamside there is much Pendulous Sedge, some Watercress, Fool's Watercress, Brooklime and Hemlock Water-dropwort. A small number of Tutsan, an unusual plant associated with semi-natural ancient woodland are also present.

The northwest bank has occasional blocks of Hazel and Bramble dominated scrub, with strips of tall ruderal vegetation. At two places there are large patches of the locally uncommon plant, Butterbur; a plant with very distinctive large leaves that thrives in open conditions.

The Malago flows through approximately 680m of Manor Woods Valley. Its meanders mean that there is approximately 810m of actual water course within this length.

Some have suggested that the dangers from flooding that the stream represented, possibly gave the Malago its name, for the word 'mallecho' was used in Shakespeare's Hamlet. "Mallecho" is a Spanish word, which was current in England at the time, meaning evil deed or wickedness. Alternatively it has been suggested that the origin of the name Malago is from the British Celtic melis (mill) and agos (place) ("Bedminster". Avon parishes. Bristol: Bristol & Avon Family History Society 2001).

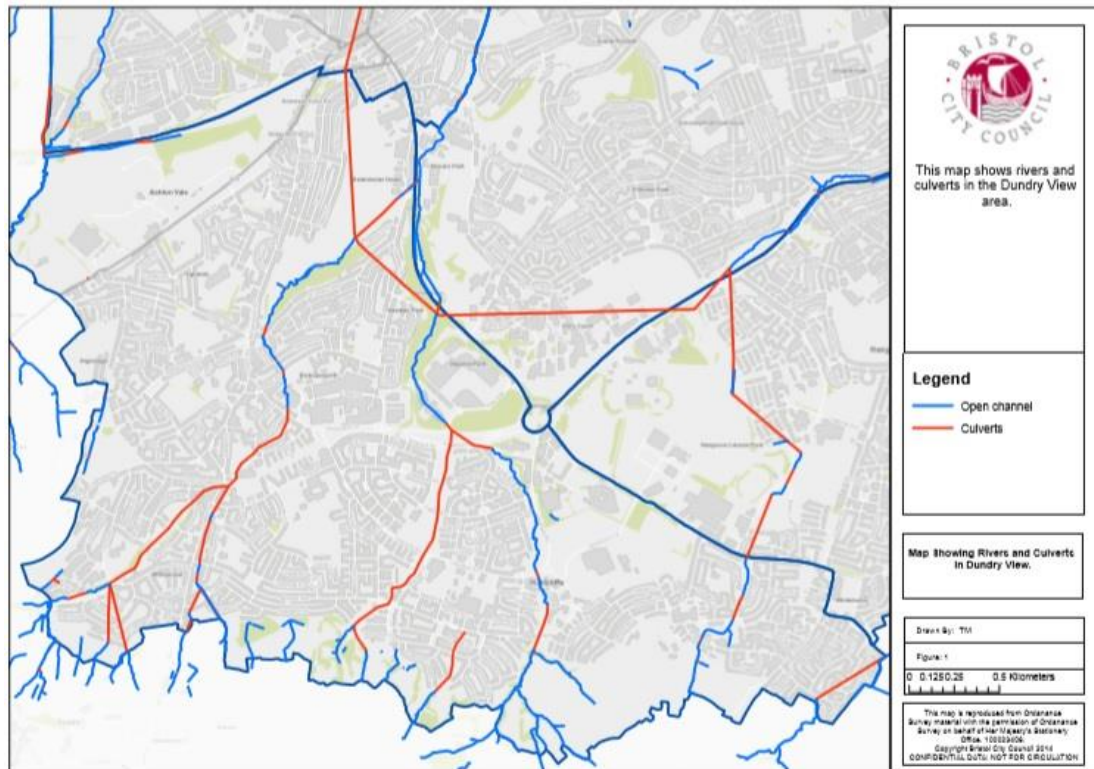
Yet another theory, espoused by Professor Richard Coates, Professor of Linguistics at the University of the West of England, is that during the mid-to-late seventeenth or early eighteenth century there was a public house called the Malago situated somewhere near the confluence of this watercourse with the River Avon. The aforementioned public house being named after the battle of Malago/Málaga, fought off the Mediterranean coast of Spain in 1487 or the ship HMS Crown Malago, which might have been a captured Spanish ship named after the aforementioned battle. It should be noted however that there is no record of a public house by this name ever having existed.

Having once been a, presumably, relatively pristine rural stream before the surrounding housing estates were built from the 1930's, the Malago was in a sorry state by the 1970's. It was seen as a suitable receptor for rubbish and heavier debris, and even waste engine oil. On one occasion an oiled Kingfisher was rescued, cleaned and rehabilitated.

Major flood events associated with the Malago occurred in 1886, 1927 and 1968; with an only slightly less serious flood occurring in 1956. The 1968 'Great Flood' occurred on 10th July, when about two months' worth of rain fell in less than two days over the West Country. This caused widespread damage and destruction as water spilled out from the river banks, including the Malago. Bedminster, Ashton, Brislington, St George and Stapleton were badly affected, with around 3,000 properties being flooded and rescue boats having to be deployed. One man was swept away to his death in flood water at Parson Street, Bedminster, while there were a further seven fatalities in surrounding areas. Winterstoke Road was blocked by flood water for days. The Wills tobacco factory was brought to a standstill as the water engulfed machinery and destroyed stocks. Dozens of shops in East Street were flooded.

Following the Great Flood, a large amount of work was done to improve flood defences and prevent a similar event happening again. This included mechanisms to divert water and increase storm water storage, plus flood defence walls. All those measures have reduced the impact of river flooding; however, the city still remains at high risk from other sources of flooding, such as tidal surges and surface water flooding caused by heavy rainfall events.

As part of the flood defence system, a massive culvert circuit was constructed around a good part of South Bristol. This intercepted all of the Malago's water from half way along its course through Manor Woods Valley, diverting it down a 3.25m wide tunnel. This culvert discharges in to the New Cut in Southville, just upstream of the junction of Coronation Road and Calvert Road. Some Bristol residents recall the sounds of the underground workings beneath their houses during the construction works that lasted from 1971 to 1974.



Plan of the culvert system in South Bristol (blue – open water, red- culverts)

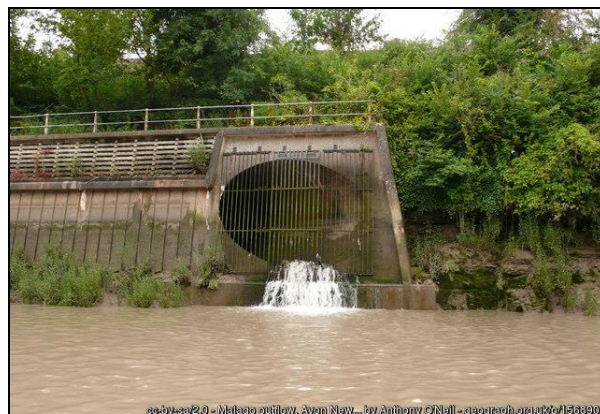
The interceptor was officially opened in 1976. Now, only a small amount of local drainage water leaves Manor Woods Valley at its northeast end, where it joins water from the Pigeon House Stream on the west side of Hartcliffe Way. This water eventually enters the New Cut though Victorian culverts at Bathurst Basin. The lack of a continuity of the watercourse within Manor Woods Valley means that the upper reach of the Malago is effectively ecologically isolated from the lower reach.



The Interceptor – where the Malago disappears underground in Manor Woods Valley



...and from inside



The interceptor culvert outfall in the New Cut

Associated works involved the canalisation of part of the Malago upstream of the interceptor and the construction of a dam to form a silt trap pond.



The dam and silt trap in Manor Woods Valley in 1981

In 1998 Avon Wildlife Trust suggested that a boardwalk should be installed around the edge of the pond and prepared an artist impression of what this might look like. Clearance of vegetation to allow construction of the boardwalk was temporarily halted when a possible Water Vole was sighted; however, subsequent surveys failed to confirm the sighting.



Proposals for a boardwalk around the edge of the pond

The boardwalk proposal was adapted so that, in 1999, a hard-standing was installed at the pond edge, from which people regularly fed ducks.



1999 – Platform at edge of the pond.

Twenty years later all that remained of the hard-standing platform was a remnant of the wooden edging and some tattered geo-textile membrane. This is the area now known as the Dog Leap. As the water table continue to rise due to the build up of silt, this area is becoming increasingly boggy, with marshy vegetation appearing.



2019 – the previous location of the platform

The South Bristol Rivers Initiative (SBRI) report of 1999 proposed the creation of a wetland/boggy area along the original course of the Malago downstream of the interceptor and studies were subsequent carried out. Bristol City Council (BCC) indicated that they were happy with the idea however the proposal did not come to fruition.

Management of vegetation along the relatively informal 'Riverside Path', that runs on the northern bank of the Malago, from the dam to the interceptor, has been a constant problem. BCC was supposed to maintain access along the path, but in fact this has rarely happened, with the Malago Valley Conservation Group (MVCG) – the precursor of the Manor Woods Valley Group (MWVG) - usually having to take the initiative in this respect. In the late 1990s it was hoped that the City Council/Wildlife Trust would help to maintain the path under the

auspices of the SBRI; however, the latter organisation effectively closed in 1999 after the departure of the Project Officer. The funding was redirected within BCC and the Wildlife Trust. The following year, the path along the Malago from the dam to the Interceptor required considerably more clearance work by BTCV and MVCG volunteers before it became passable. It remained passable through 2001. Uniquely, in 2004, the path was cleared of Brambles, Nettles and Japanese Knotweed, to four feet wide, by contractors working on behalf of the council, but became overgrown again in subsequent years. Post 2017, the path has been kept clear by the MVCG Work Group, then the MWVG.

In January 2009, a finger sign to the Riverside Path was added to the fingerpost which marks one end of the Woodland Path at the Interceptor.

The pond fulfilled its function as a silt-trap admirably, such that it needed dredging in the mid-1990s. After the excavation, the silt was heaped just next to the pond. This allowed the nutrients and pollutants from the silt to accumulate in the soil adjacent to the pond, as well as changing the natural landscape shape. The material became overgrown with ruderal vegetation, including well developed high nutrient indicators such as Common Nettles.

Apart from silt, the pond worked as a collection spot for rubbish. That in combination with the very cloudy, muddy and sometimes even odiferous water filled with, and covered by, algae meant that the pond didn't fulfill its full potential as an attractive landscaping or wildlife feature.

During a rubbish collecting foray in 1996 it was noted that the water depth was again greatly reduced by accumulated silt and slowly rotting vegetation just below the surface. At one point, the dinghy that was being used had to be poled like a punt rather than paddled. It was also noted that an island formed of accumulated silt was quite solid, sufficient to stand on. The dinghy was used to shuttle between the island and the bank, being pulling back and forth with ropes, to transporting one or two items of junk per trip. The rubbish was sitting on top of the semi-solid island and wasn't difficult to remove. The pond was still sufficiently large to support twenty-two ducks and ducklings.



An inflatable dinghy being used during rubbish clearance

By 1999 there were concerns that the pond had become an unsightly mixture of silt and rubbish. Material collected from the Malago and pond in that year included bed-springs, drainpipes, scaffolding poles and other miscellaneous rubbish. The amount of silt in the pond made the use of an inflatable boat difficult, and impossible the following year. Despite this, an Avon Bat Group led 'bat walk' revealed that Pipistrelles, Noctules and, over the pond, Daubenton's bats, were using the site. A Bat Walk in August 2007 recorded the same bat species.



Rubbish clearance from The Pond in 1999 - the last year a boat was used

There were eight ducklings on the pond in 2002 and a Kingfisher was seen occasionally. Debris clearance in the pond yielded two trolleys, two bikes, a pram, radiator, metal table, tyres, fencing, buckets, a washing machine drum and a pile of scrap metal, amongst other items. The following year's 'Amphibious Garbage Raid' tally included a safe with the back ripped open!



Rubbish cleared from The Pond in 2002

Teal were recorded on the Malago in 2003, as was a Heron foraging on the mud of the pond and a Kingfisher.

On 12 June 2004 members of Southville Wildlife Group waded up the Manor Woods section of the Malago in order to check on the stream's condition. The water was clear and it contained plenty of aquatic life indicating the water to be of good quality. In one short stretch of water, they found the Freshwater Shrimp (*Gammarus pulex*), Waterlouse (*Asellus aquaticus*), and Stonefly (Plecoptera) and Mayfly (Ephemeroptera) nymphs, and caddisfly larvae, with scores of Three-spined Sticklebacks in the pond.

An issue with blockages in the Malago were raised with the Community Parks Manager in 2005 which resulted in Council contractors clearing the stream of branches near to the pond.

In 2006, talks took place with the Environment Agency with the aim seeking 'main river' status for the Malago, which, it was anticipated, would have implications for removing the silt in the pond. In that year MVCG liaised with BCC; pressing for a sign alerting people to the danger caused by the silt around the pond, especially on the woodland side where children played. No signage was forthcoming.

The 2007 annual 'Amphibious Garbage Raid' revealed less rubbish in the stream than in some previous years; notably, for the first time since its creation in 1976, the pond was not identified as a separate entity that year. It had become effectively fully silted despite an anticipation voiced some eight years previously that BCC intended to clear the silt 'in the near future'. The intention was for BCC to liaise with the Urban Splash development company with regards to their 'Lake Shore' development at the former Wills factory in Crox Bottom. When Urban Splash got the contractors in to clear their lake, the council hoped to get them to come to Manor Woods Valley, thereby saving some of the cost of employing them separately. MVCG were contacted by consultants employed by the Council to look at options for doing the work. Due to the huge cost of moving the silt off-site, a major part of the study was to identify a suitable site or sites within the site on which to dump the silt.

In anticipation of de-silting of the pond, BCC cleared the developing Crack Willow scrub from the area during the winter of 2009-2010; however, the de-silting did not occur and instead the Willow was left to re-grow into the coppice woodland that we see today.



2010 – the silted-up pond cleared of scrub Willows



The 'Pond' in 2019 - now willow carr dominated 'Pond Wood'

De-silting the pond has been suggested on several occasions since 2010, however the areas either side of the Malago where the pond once was, are the only largely undisturbed areas on the site. There are no paths through them and dogs rarely if ever enter them. These are the only areas where Mallards and Moorhens can reasonably safely nest.

Should the pond be cleared, the matter there is the matters of where the excavate silt would go. Spreading within Manor Woods Valley would likely adversely impact on other habitats. If it were to be removed from the site it might have to be treated as contaminated waste. Quantities of CO₂ would likely be generated by machinery and released from trapped organic matter by any such operation. Clearance would have to be repeated regularly as the silt trap function works very well.

From 2010, it became part of BCC's contractor, Quadron services, to clear rubbish from the stream once a year, in the winter, but this subsequently lapsed.

In February 2018 a group of Bristol University undergraduates conducted surveys of the Malago within Manor Woods Valley. They studied BOD (biological oxygen demand), turbidity, chlorophyll, pH, oxygen, conductivity, ammonia, nitrite, nitrate, phosphate, and microplastics within the watercourse. The students found that, in general, the water quality fell within Environment Agency standards, suggesting that the Malago's water quality is very good in terms of ammonia, nitrite, nitrate and phosphate concentration. Previous research, however, has suggested that the water quality may change with rainfall events as pollutants are flushed into the river, this may especially be the case for the Malago since the catchment is surrounded by allotments where fertilisers may be used.

The study showed that there was evidence of significant microplastic accumulation along the length of the stream within Manor Woods Valley. The researchers suggested that microplastics were entering the river from within the site. They postulated that this is likely to have been due to the large quantity of plastic litter in the valley. This seems unlikely however, with plastics being 'mashed-up' on roads and CSO's upstream of the site being a more likely source.

Nitrite concentration increased in the sediment rich water above the dam, where there is a low oxygen supply. It was suggested that this increase is due to the conversion of nitrate to nitrite in lower oxygen conditions; however, this increase did not degrade the water quality significantly according to Environment Agency standards.

As a result of the work by Bristol University Students and increasing public awareness of inland water quality issues, in 2020 MWVG started to take a particular interest in the water quality of the Malago. It soon became clear that there are four Combined Sewage Outfalls (CSO's) upstream of Manor woods Valley, and one within it. The latter is situated immediately downstream of the Lower Stepping Stones.

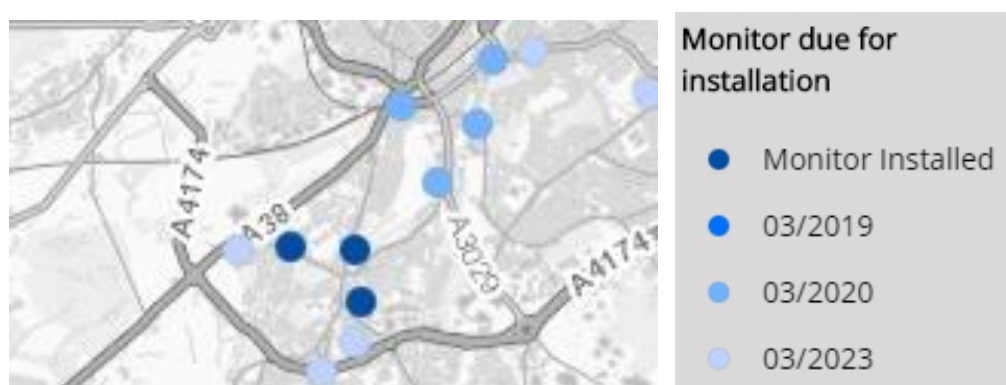


The CSO on the Malago in Manor Woods Valley

CSO's discharge untreated sewage and waste-water when the sewerage system is overloaded during periods of intense rainfall. Without CSOs, sewage could back-up in to houses and gardens. As CSOs should only operate during periods of unusually intense rainfall. Foul water released from them is very dilute because of the large volumes of rainwater within the system. Flows are further diluted by the receiving watercourses that will

also be swollen by the same heavy rain. CSOs are fitted with screens that help remove debris from the flow and minimise any environmental impact.

Bacteria are common single-celled organisms and are a natural component of lakes, rivers, and streams. *Escherichia coli* (abbreviated as *E. coli*) are bacteria found in the environment, foods, and intestines of people and animals. Although most strains of *E. coli* are harmless, others can cause illness. *E-coli* counts from monthly monitoring of the Malago in Manor Woods Valley, conducted by Bristol City Council (2018), suggested that on numerous occasions in the previous thirteen years; counts exceeded the Environment Agency's recommended 10,000 counts/litre. Results from monitors that are being installed on the CSO's, indicate that there were thirteen discharges from at least one of CSO's upstream of Manor Woods Valley during 2018, and nine and eight discharges respectively in 2017 and 2018 from the CSO with the site.



CSO monitoring points in the vicinity of Manor Woods Valley

As part of city-wide initiative, the first survey of Himalayan Balsam, a non-native invasive species, took place in 2007 under the auspice of the newly formed Avon Invasive Weeds Forum. The following year MVCG joined a group of Forum volunteers in clearing Himalayan Balsam in Manor Woods Valley. More 'pulling' sessions, usually two per year have continued since, resulting in a major reduction in the population of Himalayan Balsam. By 2015 it was noticed that the annual sessions were having an effect. An upstream survey of the Malago conducted in 2017 revealed no evidence of Himalayan Balsam, indicating that it is theoretically feasible to eradicate this pernicious plant from Manor Woods Valley. Following the considerable reduction in Himalayan Balsam that had occurred, even more effort is being taken to remove plants between and following the more organized 'pulls'. In both 2019 and 2020, a single organized pull by a small team of volunteers was completed within a couple of hours, with little follow-up required. 2022 saw very few plants being found during the first 'pull' and none during the second.

During the period 2017-2022 Beautiful Demoiselle, Large Red Damselfly, Azure Damselfly, Common Blue Damselfly, Blue-tailed Damselfly, Southern Hawker, Broad-bodied Chaser and Common Darter were recorded.

Goldfish (*Carassius auratus*) are occasionally seen in the Malago within Manor Woods Valley. These no doubt originate from the deliberate release of fish from aquariums or garden ponds. It is very likely that, due to their bright colours, released Goldfish are rapidly predated by Kingfishers, Little Egrets and/or Grey Herons.

Shoals of Roach were reported as occurring in the silt pond above the Dam in the late 1970's. They have been seen more recently at the outfall of the culvert where the Malago enters Manor Woods Valley.

A dedicated fish survey was conducted in 2022. Five Eels were observed; all associated with rocky substrates.



Eel in the Malago (Photo courtesy Hazel Blacker)

Bullheads were found to occur, sometimes in appreciable numbers, in all areas with rocky substrate and aerated water downstream of the Ham. Three-spined Sticklebacks were observed in several locations with silty substrate from the southwestern end of the Island to the Interceptor. Thirteen Sticklebacks were caught in one of trap situated next to the Dog Leap.

What appeared to be Roach were seen in some sheltered slack water just downstream of Butterbur Bend and a probably Stone Loach was seen in a gravelly section of the Malago, between the Upper and Lower Stepping Stones.

In 2017 a very young Common Toad was found near the dam, indicating breeding in the marsh (ex-pond) area. An adult Common Toad and Common Frog were found during raking of the Valley Heights Meadow in 2019.

With fish come piscivorous birds such as Kingfishers, Grey Herons and Little Egrets. Other aquatic habitat birds encountered with Manor Woods Valley include Water Rail, Mallard, Moorhen and Grey Wagtail. A small number of Teal are often present during the winter months. These were first record during the winter of 1996/7. A recognizable Mallard that was frequently observed on the Malago during the late twenty-teens was also observed on the Pigeon House Stream in Crox Bottom, indicating that the two watercourses should be considered as part of the same ecological system, at least in so far as mobile species are concerned.

As of 2021, Water Voles are not present on the Manor Woods Valley section of the Malago. The presence of the 'ecological break' between the interceptor and the downstream section of the Malago, means that it will be difficult for this species to recolonize from the latter.

In the winter of 2019/20 an Otter was filmed hunting fish in a pond in a garden that backs on to the Malago, immediately off the upstream end of Manor Woods Valley. This individual can only have reached this pond by travelling up the Malago which would have involved traversing the 'ecological break' open space at the northeast end of the site. Another Otter was filmed dragging a large Koi Carp across a garden, backing onto Manor Woods Valley, approximately 30m from the Malago during the summer of 2022.