
NRA Thames 179
ENHANCEMEN
PROJECT

Maps, some dating back to medieval times, show the impact of man's influence. The major alterations are as follows:

i) In approximately 1910 the Metropolitan Water Board constructed the reservoir's aqueduct to supply water from the River Thames at Hythe End to its works in the Thames Valley.
This resulted in the river being placed in a siphon at three locations, Birch Green, Shortwood Allotments and adjacent to the Queen Mary Reservoir at Laleham.

ii) Soon after the above, the Ash was diverted to make way for the Queen Mary Reservoir at Laleham. In fact parts of its old course are still visible near the Laleham Intake and Pumping Station.

iii) The source of the River Ash has also moved some metres south and several hundred metres of its length was diverted to make way for the Staines By Pass (the present A30) in the early 1960's.

iv) Another point is the history of the Shepperton Studios site and particularly Shepperton Manor, the history of which dates back to the monks of Westminster circa 900AD, who may have been involved in some of the widening visible today.

The Ash catchment in pure hydraulic terms is fairly flat, being some 10.6km in length, with an average gradient of 1 in 1226. On departing the River Colne at Staines, it has an average width of some 2-3 metres, becoming some 30 metres in width above Squires Bridge Road in Shepperton.

In addition, it now flows underground in a culvert some 270 metres long beneath the Crooked Billet at Staines and many of its original fords have been replaced by bridges, examples are:

Ford Bridge Road, Ashford; Water Splash Road, Old Charlton Road and Ford Bridge Road, Ashford

Further developments include the extensive gravel winning in the area resulting in the loss of adjacent farmland and the increase in housing adjacent to the watercourse.

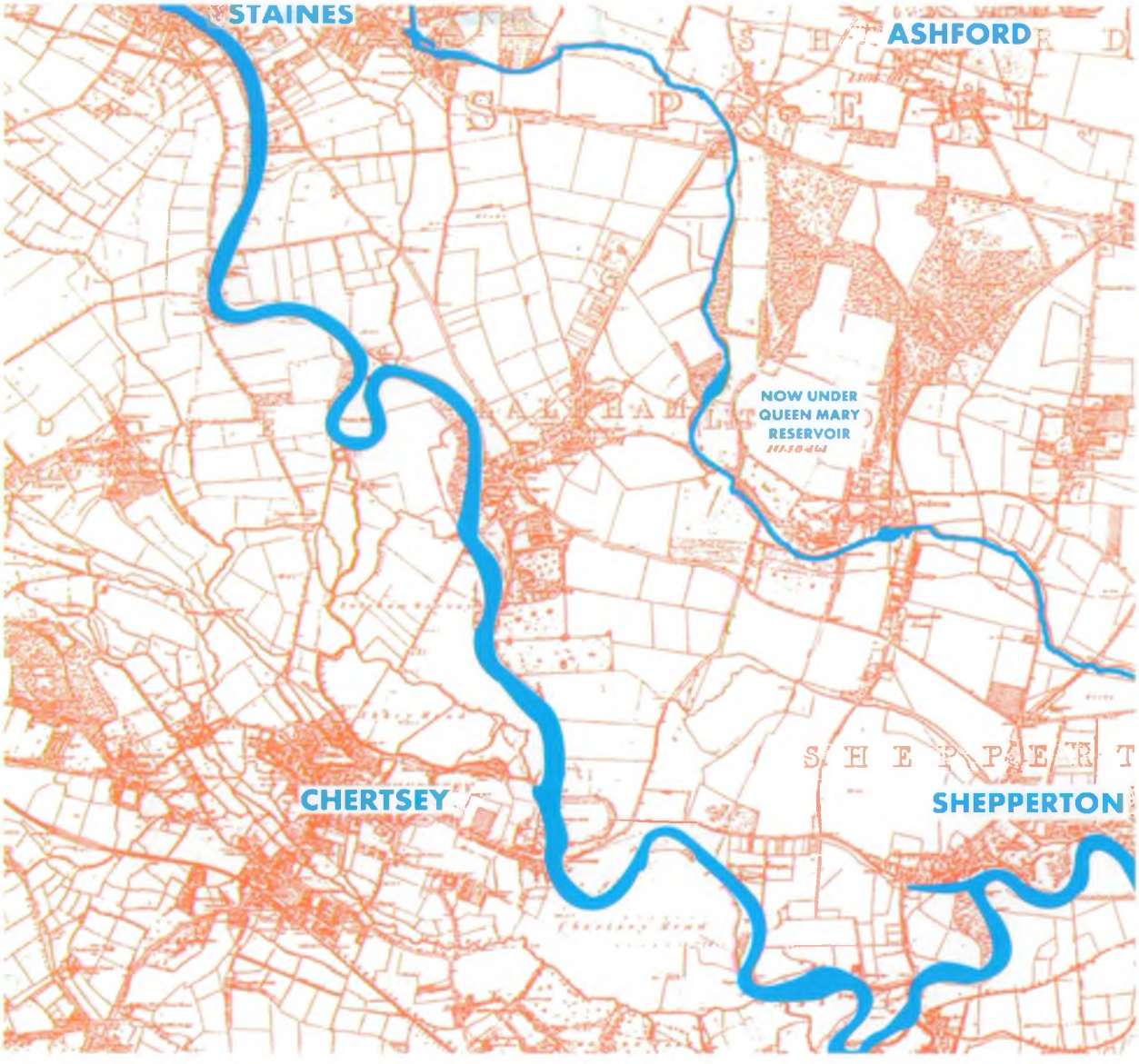
The River Ash has virtually no direct surface water discharges other than a direct pump out from the Thames Water Utilities Water Treatment Works at Ashford Common which enters the river at Nutty Lane, Shepperton.

There is a history of flooding of this watercourse, the last and most serious being in 1947 when many homes and roads, etc. were flooded in Staines, Ashford, etc. It must be emphasised that this was a direct result of excessive flood water entering the Ash system from the River Colne and the Ash being backed up by high River Thames levels.

More recently, the River Ash has suffered from the opposite problem. The river and its environment has suffered badly from lack of flow. This caused excessive silt build ups which in turn caused a serious decline in both the natural fauna and flora of the river.

Along with the obvious physical decline, the public, in the form of numerous enquiries by telephone, letter, etc. caused the NRA Engineers at Sunbury to investigate and in consultation with the multi-disciplined team within the NRA, a strategy to carry out the River Ash Project in conjunction with local businesses and land owners was developed.

# HISTORY OF THE RIVER ASH




The River Ash starts from the River Colne at Staines, immediately south of the A30 Staines By-Pass and flows parallel with the A30 as far as the Crooked Billet roundabout before turning south east towards the Queen Mary Reservoir. The Ash then runs along the western boundary of the Reservoir before turning south east again to join the River Thames at Lower Sunbury.

The River Ash is in some ways a unique watercourse in the Thames Region for two reasons:

1. It has no direct catchment area in text book terms, in that most of its flow is taken from the River Colne at Staines and then flows into the River Thames.
2. That its entire length is confined to one Borough, namely, Spelthorne Borough Council.

The history of the River Ash is not exact, but originally we believe it was a natural water course and could in fact be the early course of the River Colne.

The present direction of the River Ash as it leaves the River Colne at Staines may be the result of flooding or man's influence, although we may never know the true answer.

In the past the river has had many names, either in its entirety or for parts of its length, some of these are listed below:

ECLES BROC
ECHOAL
ECHEL
EXE

Also Littleton Brook and Charlton Brook

the river ASH

# FLOOD DEFENCE

The National Rivers Authority is a major environmental protection agency responsible for safeguarding and improving the natural water environment. It was established by the Water Act of 1989 and is an independent body serving England and Wales.

The Thames Region is one of the largest regions in the country with a resident population of over 11 million people in an area from Dartford in the East to Cirencester in the West, Luton in the North to Alton and Gatwick in the South.

One of the largest tasks the Authority undertakes is that of providing effective flood defence bearing in mind that there are 5,294km of main rivers in the region.

To achieve this the Authority has given itself two objectives:

To provide effective defence for people and property against flooding from rivers and the sea;

To provide adequate arrangements for flood forecasting, flood warning and for responding to flood events.

In addition it has statutory powers to enable it to carry out this work. These being the Land Drainage Act 1976 and Byelaws which now form part of a larger piece of legislation - The Water Resources Act 1991.

To explain in general terms, no work con be carried out within the river bed, its banks or within 8 metres of the top of the bank of any main river without the consent of the NRA. This provision being extended to 16 metres on tidal main rivers.

**RIVER ASH FLOOD ALLEVIATION SCHEME**

Thames Water Utilities during 1994/95 commenced a major upgrading of the water treatment works at Ash Ford Common. The works discharges to the lower river Ash near the M3.

Due to the expected increase in flow and the risk of flooding to properties in Heriden Way and Old Charlton Road Shepperton a flood relief channel was proposed.

This was constructed from Jan - May 1995 at a cost of £450,000.

The works involved constructing a lined channel through an old tip site, pipe layering and construction of bridges.

the river ASH

Capital Works are also carried out to improve the capacity and structural integrity of weirs, sluices, locks and of course we manage the Thames Barrier our largest asset which at today's prices would cost over £500 million to replace.

It is worthy of note as well that even though all this work is carried out annually there is always the prospect of being "caught out" by the weather. From our River Control Rooms throughout the Region we keep a constant check on weather conditions and river levels using the latest technology including rainfall radar and telemetry.

This enables staff to provide round the clock forecasting. At times of heavy rain and rising river levels early warning of possible floods can be given to the emergency services.

It is worth noting that in 1947 large areas of Egham, Chertsey, Staines, Ashford, Shepperton, Sunbury etc. were flooded and there have been a number of less severe events since that date. So the NRA continues to update and improve its methods and efficiency to prevent or reduce such occurrences.

Most, if not all of the rivers in Thames Region have been subject to the influence of man over the centuries and not always in a positive way. As urbanisation and infrastructure increases large areas of farmland and pasture make way for houses, factories, roads etc. This has resulted in a greater need for maintenance of the rivers to prevent flooding.

To quantify this work the operating expenditure in Thames Region is currently in excess of £50 million pounds and approximately 50% of this sum is spent on flood defence and employs over 600 people.

The work comes in various forms, but in order to keep sufficient capacity available in a river channel to prevent flooding or to reduce its severity a constant programme of preventative maintenance is carried out.

This includes:

i) clearance of excessive growth from river banks and vegetation from the channel;
ii) preventative tree surgery to prevent their collapse into rivers;
iii) bank repairs and maintenance of flood banks.

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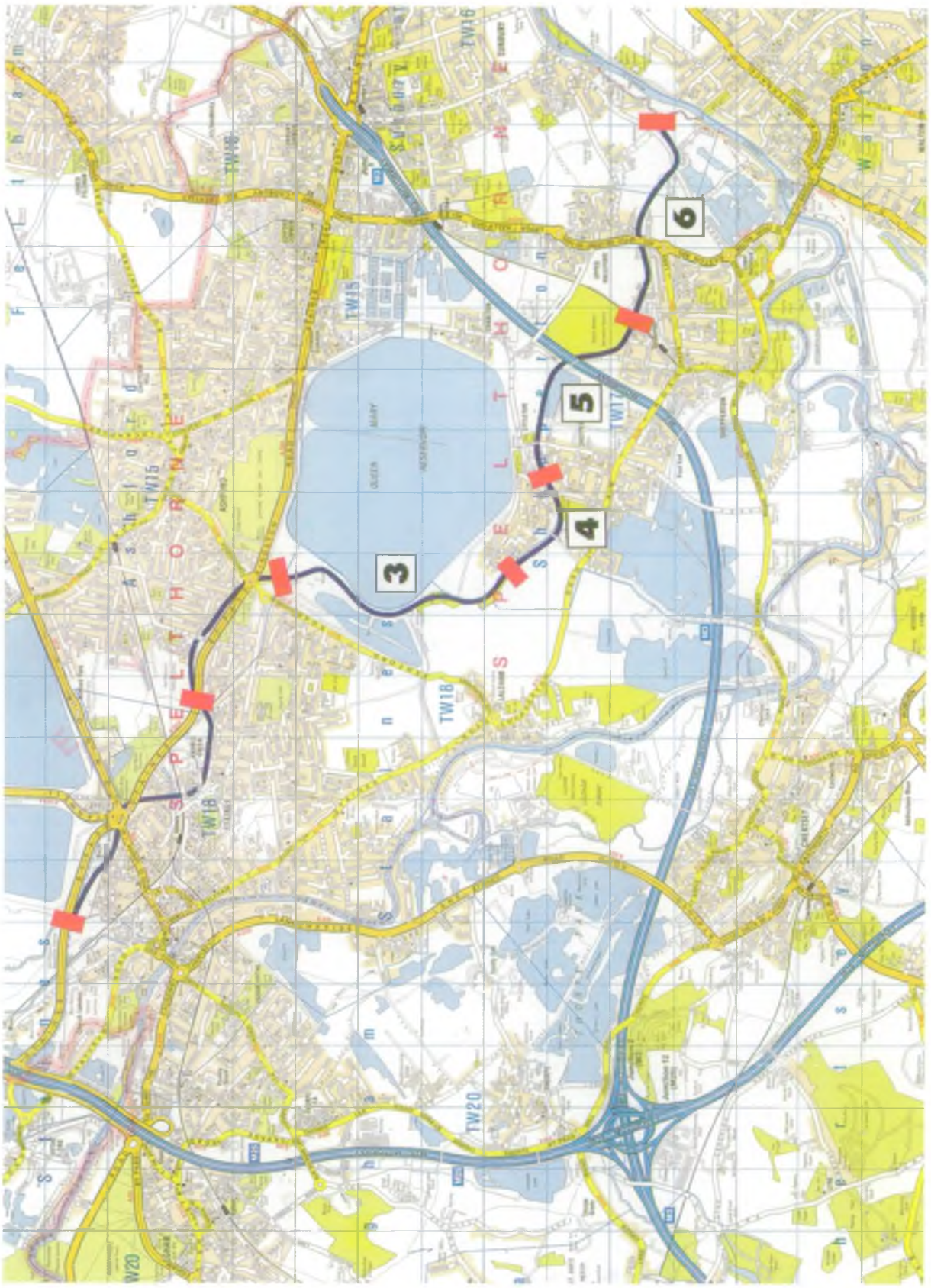
# PROJECT PHASES

ENHANCEMENT PROJECT

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The following briefly summarises work which is either completed, in progress, or yet to be commenced on the three phases of the River Ash Project:

**PHASE 1**
River Colne to Knowle Green

- Increase flows by approximately 50% through work on outfall from the Colne and de-silting of culverts.
- De-silting of channel
- Creation of bed of emergent vegetation shelf
- Tree planting
- Installation of deflectors
- Pollarding of trees

Phase 1 was completed in April 1991.

**PHASE 2**
Staines By-Pass to Fordbridge Park Roundabout

- De-silting of channel
- Reinstatement of gravels
- Installation of inchannel features
- Pollarding of trees
- Creation of walkway

Work on Phase 2 was started in November 1991 and was completed in March 1993.

**PHASE 3**
Queen Mother Reservoir to Shepperton Studio Lakes

- De-silting of channel
- Tree planting
- Pollarding of trees
- Pond creation
- Creation of walkway

This work started in the summer 1993 and the anticipated completion in 1994 and will mark the conclusion of an enhancement project designed to give maximum benefits to the local community and wildlife.

**PHASE 4**
Shepperton Studio site - Shepperton

- Work to weirs to allow movement of fish through the site.
- De-silting of lakes and creation of wetland areas for water fowl.
- Tree management to create age diversity and to prolong the life.
- Footpath creation (a further part of Borough of Spelthorne's plan for a River Ash walk).
- Management plan for the site, including interpretive boards to show areas of interest to walkers.

The work will comprise three contracts, which was completed in July 1995.

**PHASE 5/6**
Squires Bridge Road, Shepperton to River Thames

- De-silting of channel and creation of wetland areas for water fowl.
- Replacement of river bed gravels at selected sites for spawning fish.
- Tree management to create age diversity and to prolong the life.
- Footpath creation, where practicable, (as part of Borough of Spelthorne's plan for a River Ash walk).

The works are anticipated to be carried out from Summer 1995 to 1998, starting at Shepperton and completing at Lower Sunbury.

the river
ASH

# FISH IN THE RIVER ASH

Prior to the River Ash Enhancement Project there was very little information available on the fish populations. Minor species such as stickleback, stoneloach and bullhead were known to inhabit certain sections along with eels and roach in the more silty reaches that dominated the river.

Following the Phase I improvements, which resulted in increased flows, channel narrowing and river bed replacement, it is hoped that the newly created habitats will boost fish stocks. Species such as chub and dace require gravel substrates to spawn successfully and the increased flow should ensure that the reinstated river bed remains clean.

Restocking of these species is not planned so it is very important to monitor the natural recovery of the fish population to evaluate the success of the scheme. The Fisheries Department will therefore be carrying out regular surveys before considering restocking the river.

Two pre-enhancement surveys carried out at Woodthorpe Common and Wellington Rood Park produced very poor results. Although the number of different species found was encouraging with roach, gudgeon, chub, dace and eel recorded, the numbers were, not surprisingly, low.

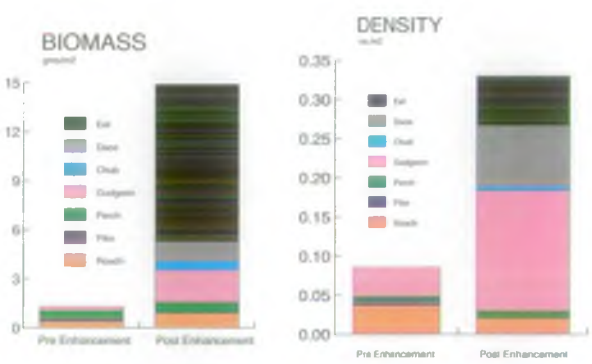
One post enhancement survey recently carried out near Priory Green revealed excellent numbers of roach, perch and gudgeon with three pike also in attendance.

The biomass of fish caught was 22gm/m2 which was three times larger than the pre-enhancement site and exceeds the region's target for a coarse fishery.

The presence or absence of certain fish gives a good idea of how healthy the water environment is and an important aspect of the NRA's role as 'Guardian of the Water Environment' is to protect fisheries and fish numbers.

Monitoring the numbers and health of fish, rearing fry for restocking depleted rivers, installing structures which help migrating fish return to their spawning grounds and improving habitats all contribute to the protection of fish population.

Fisheries staff carry out surveys to determine the number and condition of fish, restock watercourses and monitor the health of fish moved by angling clubs. Staff are often called on to rescue fish in distress, either as a result of natural causes, such as low oxygen levels in rivers particularly during hot weather or from pollution incidents. They are also available to offer expert advice on a wide range of fisheries management problems.

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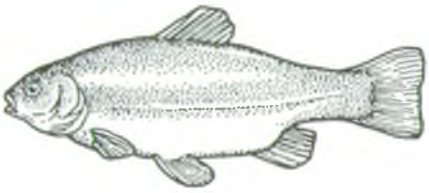

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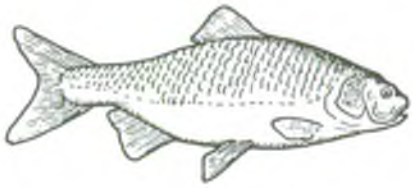
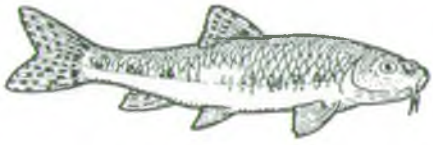


Roach

Bream

Bullhead



Gudgeon

Dace

Ninespine Stickleback

Perch

Pike

Minnow

Ruffe

Eel

| SPECIES | DATE | LOCATION |
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| Tench | | |
| Bream | | |
| Bullhead | | |
| Gudgeon | | |
| Dace | | |
| Ninespine Stickleback | | |
| Pike | | |
| Perch | | |
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| Roach | | |
| Eel | | |
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# RIVER QUALITY

The quality of water in our rivers is vital. Rivers provide a large proportion of the water used for domestic, agricultural and industrial purposes and should be able to support a vast range of animal and plant life. Many different factors can affect the overall water quality, from long term (chronic), low level pollution, to short term, serious (acute) pollution incidents. Physical factors such as the make-up of the riverbed and/or banks, and speed of flow are also important. When assessing the quality of river water the following factors should be considered:

### 1. APPEARANCE AND SMELL

For a variety of reasons a river may have a natural colouration (chalkstream - colourless, clay - cloudy brown, peat - clear brown). Algal growth or organic and industrial pollution can produce a variety of different colours which can appear quite rapidly.

The smell of a water sample can give clues about quality. An earthy smell can indicate farm pollution, a smell of bad eggs can mean stagnant water with little dissolved oxygen.

### 2. pH

pH is related to the concentration of hydrogen ions in water and is measured on a scale of 0-14 (acid to alkaline). A pH of 7 shows that the water is neutral. The normal pH of river water can range from about pH6 (slightly acidic) to about pH 8 (slightly alkaline). A large change in pH caused by chemical pollution can affect the fine balance of other chemicals in the water.

### 3. SUSPENDED SOLIDS

Sediment is present in all rivers produced by the force of fast flowing water or by being washed off the land. Pollution by suspended solids can be caused by lack of care during the dewatering of excavations or dredging operations. A high level of suspended solids can smother a riverbed, clog the gills of fish and cut down the amount of sunlight available causing a reduction of plant growth.

### 4. AMMONIA

Ammonia is produced naturally by the breakdown of organic substances by micro organisms. If enough oxygen is present, ammonia is further broken down to nitrates. This process occurs naturally in all rivers and is also carried out on a much larger scale and at higher concentrations at sewage treatment works. A discharge from a farm or sewage works can cause high levels of ammonia which are toxic to aquatic life.

### 5. DISSOLVED OXYGEN

The amount of oxygen dissolved in water is critical to the life that lives in it. For example trout would die if the oxygen level fell below 5 mg/l. As a general guide levels of above 10 mg/l represent well oxygenated water that can support a wide range of plant and animal life. Figures below 5 mg/l indicate some degree of pollution. Aquatic plants and algae produce oxygen during daylight hours but take it in again at night causing levels to drop. High nutrient levels, such as phosphates and nitrates from sewage works effluent, which encourage excessive plant growth, can, in turn cause oxygen levels to fall to critical levels at night. Rivers rich in nutrients are termed eutrophic.

### 6. TEMPERATURE

As the temperature of water rises its ability to hold oxygen decreases. Also at higher temperatures animal movement tends to speed up, plant growth accelerates and bacteria feed more rapidly. This increase in activity reduces the oxygen content even further leading to a marked deterioration in water quality and river life.

### 7. GENERAL POLLUTANTS

Foam on rivers can indicate organic pollution from farm and sewage waste, or industrial pollution such as detergents. These pollutants lead to an increase in bacteria and algae in the water which use up valuable dissolved oxygen. (see 6.)

Oil is a common pollutant which as an iridescent film (rainbow colours), is unsightly, but as a thicker layer excludes oxygen from the water and can kill aquatic and bird life. A small proportion dissolves in water and is toxic. Just 4th ltrs of oil can cover an area of water 8 football pitches!

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## 9. RIVER FLOWS

The amount of water in a river also has an effect on its quality. If too much water is taken from a river for treatment and supply, its ability to disperse pollutants and cope with other factors is reduced. Recent dry summers and increased demand for water have caused serious concern about the water levels in many rivers.

One of the most accurate ways of testing for water quality is to look at the animal life present in the water. Different creatures can tolerate different levels of pollution. So certain species can be used to indicate how badly a river or stream is polluted. For example Mayfly and Stonefly nymphs can only survive in highly oxygenated unpolluted water. However, the Rattailed Maggot can overcome the problems of heavy pollution and lack of oxygen by extending a tube like a snorkel to breathe air from the surface.

As the majority of the flow in the Ash originates from the River Colne, the Colne exerts a strong influence on the quality of the Ash.

Although there are no major water supply abstractions from the Ash, there is one cooling water abstraction from the Ash at Shepperton Studios. There are major abstractions from the Thames immediately down stream of the Ash confluence.
The main influences on the quality of water in the Ash are:

a) Surface water run-off from urban areas such as Upper Halliford, Shepperton Green and Staines.

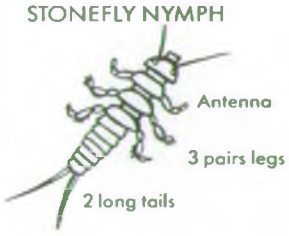
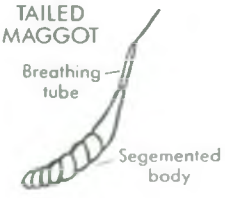
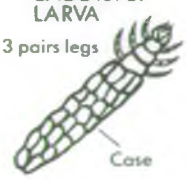
b) Associated with a) is run-off from commercial and industrial development.

c) Trade effluent discharges from the Thames Water Utilities water treatment works at Ashford Common and a cooling water discharge at Shepperton. Both these discharges require a formal consent to discharge from the NRA and are monitored to ensure compliance with the consent standard. The discharge from the Water Works is the most significant, consisting of a maximum of 12,000 cubic metres per day of effluent which is discharged at National Grid Reference TQ08086835. The cooling water discharges once or twice per annum at NGR TQ06686845 is from Shepperton Studios at Littleton.

The river water quality objectives (RQO) of the Ash are currently classified by a modified version of the DOE/NWC river classification scheme and are as follows:

| River | Length | Upstream limit | Downstream limit | RQO |
|---|---|---|---|---|
| Ash | 8.1 | Colne (TQ035 721) | Ashford Comm. WTW | 2B/1B |
| Ash | 2.6 | Ashford Comm. WTW (TQ080 683) | Thames Confluence | 2B |

In addition to the chemical sampling the river is surveyed biologically. Benthic invertebrate surveys are carried out at a number of sites where riffle habitats are present. The population structure of the invertebrate fauna gives a measure of quality complementary to the chemical data.

| CLEAN<br>5°C 14.0pH - 20°C 10.0ph | LOW<br>5°C 11.5pH - 20°C 9.5ph | HIGH<br>5°C 5.5pH - 20°C 3.5ph | VERY HIGH<br>5°C 2.5pH - 20°C 1.5ph |
|---|---|---|---|
| STONEFLY NYMPH<br>  <br> | FRESHWATER SHRIMP<br>  <br> | WATER LOUSE<br>  <br> | RAT TAILED MAGGOT<br>  <br> |
| MAYFLY NYMPH<br>  <br> | CADDISFLY LARVA<br>  <br> | BLOODWORM<br>  <br> | SLUDGE WORM<br>  <br> |
| Unpolluted water is full of fish and insect life. Waterbirds such as herons and ducks are present. | Species at the end of the food chain such as large fish and water birds disappear first. | Snails and freshwater mussels disappear. Very few fish survive. | Heavily polluted water often looks clear but supports little or no life. |

the river ASH

# RIVERBANK CODE

Rivers and riverbanks play an important part in nearly all our lives. By knowing, and keeping to, the riverbank code we can protect our water environment and ensure that our rivers, and in particular the River Ash, remain clean, free flowing and safe for everyone.

Everyone will benefit from following these simple rules, some for your safety, and others for the sake of our waterways.

Have fun and enjoy the riverbank surroundings, but don't take risks! Remember:

- Be alert. Always be aware of your surroundings and what to avoid. Make sure you can recognise poisonous varieties of plant and take care not to touch them. The GIANT HOGWEED, for example, is a riverbank plant which can burn and blister the skin.
- Children should ALWAYS be supervised by an adult.
- Avoid areas of riverbank which are very steep, slippery or crumbly.
- Don't run around on riverbanks. Falling into rivers can be very dangerous.
- Always cover cuts or broken skin with waterproof plasters, and avoid rubbing your eyes with dirty hands.
- Don't eat or drink while carrying out your riverbank investigations; and wash your hands with tap water and soap when you have finished.
- Watch out for hazards such as barbed wire, broken glass and rusty litter.
- Take all litter home with you and try to cause as little disturbance to riverbank life as possible.

the river ASH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ASH

# THE ENHANCEMENT PROJECT

The River Ash runs solely through the Borough of Spelthorne. By linking areas of open land it is invaluable as a "green corridor", providing extended pathways for the public and wildlife corridors in natural surroundings.

The river flows from the River Colne, just south of the Staines By-Pass, some 11 km to the River Thames at Lower Sunbury and has in the past been the subject of much local concern regarding its appearance and lack of flow.

An investigation carried out by the National Rivers Authority, Thames Region, showed how the river could be improved as a "green corridor", and a six phase programme was devised. The first four phases of work have been completed and it is anticipated that the entire project will be completed by 1998.

For the project to be a success, the support and cooperation of the local authority and community is vital. With this successful partnership it is hoped that the River Ash Project will be able to

- Enhance the wildlife value of the Ash Corridor.
- Improve public perception of the river.
- Enhance the corridor's amenity value.
- Create spawning areas for coarse fish.

## CHARACTERISTICS OF THE ASH CORRIDOR

The NRA's survey identified the River Ash's main characteristics as:

### ADJACENT HABITATS

A variety of habitats adjacent to the river were identified. These included woodland, scrub, semi-improved pasture, amenity grassland, gardens and disturbed ground. Though none of the sites were identified as being botanically rich, the patchwork of habitats was seen as being important for particular birds and invertebrates.

### TREES AND SHRUBS

A number of important mature trees were identified on the banks of the river. The most common species were crack, weeping and white willow. There were also specimens of ash and alder found. For the long term benefit of these trees, a programme of pollarding and coppicing is required.

### MARGINAL VEGETATION

The wet margins contained a variety of species, due to the predominance of shallow earth banks. Fools watercress, hemlock, water dropwart and water plantains were abundant. Species of note also found include great water dock and marsh woundwort.

the river ASH

## EMERGENT VEGETATION

Where the banks were not too shaded there were often beds of emergent vegetation, such as yellow flag iris, sedge and reedmace. These beds are important for breeding birds, for example, moorhens, coots and mallards plus insects such as dragonflies and damselflies.

## CHANNEL VEGETATION

Generally beds of submerged aquatic macrophytes only occurred where there was a gravel bed. Species found included starwort and Canadian pond weed. On the slow silty stretches there were occasional patches of water lilies, though it is likely they were introduced.

## CHANNEL FEATURES

It appears that many of the reaches of the river have been straightened. Where sinuosity occurs there has been the development of natural pools. Several islands occur within the river, all of which appear to be important for breeding birds. Where the channel has been widened and deepened, siltation has occurred, this has been detrimental to both aquatic macrophytes and invertebrates.

## FISH

Initial surveys show that chub and dace are on the increase - a good indication that flows and habitats are improving. Bullheads and sticklebacks are found throughout the river. Reaches such as the Shepperton Studio lakes have some value as fisheries, and it is hoped that increased flows will increase fish stocks.

## AQUATIC INVERTEBRATES

The numbers of species found are thought to be good for a river on the urban fringe, though poor compared to a rural river. It is hoped that the reinstatement of gravels will increase populations of invertebrates, for example, fresh water shrimp and water louse.

## THE MAIN OBJECTIVES OF THE PROJECT

The NRA's survey identified that the main objectives of the Project should be:

To increase the normal flow in the river and alleviation of low flow problems.

Installation of channel features, such as low weirs, to increase aeration.

De-silting of channel and reinstatement of gravels.

Creation of shelves of emergent vegetation for water fowl.

Tree planting and management.

Possible creation of riverside paths.

Re-stocking of fish and creation of fish shelters, riffles and pools.

Creation of islands.

Removal of rubbish.

the river ASH

# PLANT LIFE

There are many species of plant that live in or alongside the River Ash. Plants play an essential part in the ecology of the river, supplying oxygen, food and shelter for the animals around the river.

In the Ash, the most common submerged species is the Canadian pondweed which was introduced into this country from North America in 1847. The common native species is the starwort (Callictriche sp) which will show different growth forms depending on the local flow conditions. Filomentous algae is also common indicating a degree of nutrient enrichment. Of the species specialised to living on the surface of the river, the duckweed (Lemna sp) is most common, although not being rooted to the bed this species will only be found where sheltered from the main flow.

Emergent species are those 'reed like' species that grow in the river bed but emerge high above the water surface. These species are very important to breeding birds like the coot, moorhen and mallard for cover and insects like dragonflies and damselflies. These have aquatic larvae but need to leave the water to complete their life cycle. The most common emergent plant species are the branched bur-reed (Sparganium erectum) identified by its round spikey flower, greater reed mace or bulrush (Typha latifolia) and the yellow flag iris (Iris pseudacorus).

Marginal species are those plants that live at the edge of the water and can survive in both wet and dry conditions. The shallow banks of the Ash provide an excellent environment for marginal plants and many different species can be found.

Some species encroach well into the centre of the channel and include watercress (Nasturtium officinale) which was first commercially cultivated in Kent in 1808. It should not be mistaken for the wild, and fool's watercress (Apium nodiflorum) which looks similar to watercress but is inedible.

Other marginals prefer more marshy conditions. These include the great water dock (Rumex hydrolapathum), purple loosestrife (Lythrum salicarii) which can be seen flowering from June to August, marsh woundwort (Stachys palustris) and hemlock waterdropwort (Oenanthe crocata).

There are a variety of trees that naturally occur alongside the river such as the ash which is used to make cricket stumps, crack willow, which were traditionally pollarded for timber and are now pollarded for river management and the benefit it has for wildlife. Other trees include cricket bat willows and alder.

Extensive beds of nettles are often found along the river bank. These are important habitats for the peacock, small tortoiseshell and common butterflies whose larva are dependent on the nettle as a food source.

Finally, there can be found a variety of non-native species that now grow in the wild, and include the orange balsam (Impatiens parviflora) which comes from north-eastern America and was first found in the wild on the River Wey in Surrey in 1822.

the river ASH

Yellow Iris

Flowering Rush

Reed Mace

Stinging Nettle

Marsh Marigold

Common Reed

Brooklime

Dandelion

Water Forget-me-not

Hemlock Water Dropwort

Water Mint

Purple Loosestrife

Use this chart to record your findings.

| SPECIES | DATE | LOCATION |
|---|---|---|
| Yellow Iris | | |
| Flowering Rush | | |
| Reed Mace | | |
| Stinging Nettle | | |
| Marsh Marigold | | |
| Common Reed | | |
| Brooklime | | |
| Dandelion | | |
| Water Forget-me-not | | |
| Hemlock Water Dropwort | | |
| Water Mint | | |
| Purple Loosestrife | | |

| OTHER SPECIES | DATE | LOCATION |
|---|---|---|
| | | |
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the river ASH

# AQUATIC LIFE

Compared with many urban rivers the River Ash provides a rich environment for a variety of aquatic invertebrates. Some are fully aquatic and others have an aquatic part of their life cycle. By looking at what species live in the river one can gauge the general water quality.

There are many examples of this second category on the river. For example the non-biting midges whose larvae burrow into the silty bed, of which some are known as bloodworms due to their red colouration. One may also find one of the many species of caddis fly larva noted for building cylindrical cases out of debris from the river bed for protection and camouflage.

The most visible of this type of insect are the damselflies and dragonflies. The larva of the dragonflies in particular are voracious predators, taking prey as large as tadpoles and small fish. Species of damselfly that may be found include the banded damselfly that can be seen between May and September and require emergent vegetation for courtship and display purposes. The blue tailed damselfly is also common and can be seen between June and August weaving among the emergent vegetation.

Of the dragonflies the common darter may be seen between June and October, either sunbathing on bare patches of ground or making darting sorties of several metres before returning to its original perch.

There are some species of insect that may be found in the river, which although aquatic during adulthood, do have the ability to fly if the local environment conditions change. These include the water boatman, that has specially adapted legs to enable it to swim underwater and preys on all kinds of aquatic animals, including those that have fallen on the water surface and even fish fry. There are also a variety of water beetles, some of which feed on other aquatic animals while others scavenge the river bed.

Water scorpions can also be found. They do have wings but are unable to fly although, they do sometimes hover on the riverbanks. Despite their name they do not possess a sting, instead using pincer-like fore legs to catch prey.

Of the species that live in the water, the freshwater shrimp crawls along the river bed. Although it can swim it lives usually on the bed with a variety of water snails and feeds on vegetation.

Finally there are a variety of species that have adapted to live on the surface of the river. For example the pondskater or whirligig beetle which prey on species that have fallen in the water or aquatic species beneath the water.

Smooth newts can be found along the river. The adults will only visit the river to mate and lay eggs during spring and summer. During this period the males become more brightly coloured and a crest develops along its back, they are also more active often swimming during the day. The terrestial newts are more secretive, spending daytime hidden in a damp shelter remaining motionless when disturbed.

The common frog can also be found on the river, leaving hibernation in early spring to come to the river to breed. Most of the year the frog is to be found in the damp herbage adjacent to the river, feeding on invertebrates.

the river ASH

Freshwater Limpet

Water Snail

Leech

Flatworm

Rat-tailed Maggot

Worm

Non-biting Midge Larva

Water Mite

Freshwater Shrimp

Water Hoglouse

Pea Mussel

Pond Skater

Water Boatman

Water Beetle

Swimming Mayfly Nymph

Squat Mayfly Nymph

Flattened Mayfly Nymph

Burrowing Mayfly Nymph

Damselfly Nymph

Dragonfly Nymph

Stonefly Nymph

Cased Caddis Larva

Caseless Caddis Larva

Alderfly Larva

Blackfly Larva

Cranefly Larva

Use this chart to record your findings.

| SPECIES | DATE | LOCATION |
|---|---|---|
| Freshwater Limpet | | |
| Leech | | |
| Rat-tailed Maggot | | |
| Non-biting Midge Larva | | |
| Freshwater Shrimp | | |
| Pea Mussel | | |
| Water Boatman | | |
| Swimming Mayfly Nymph | | |
| Flattened Mayfly Nymph | | |
| Damselfly Nymph | | |
| Stonefly Nymph | | |
| Caseless Caddis Larva | | |
| Blackfly Larva | | |

| SPECIES | DATE | LOCATION |
|---|---|---|
| Water Snail | | |
| Flatworm | | |
| Worm | | |
| Water Mite | | |
| Water Hoglouse | | |
| Pond Skater | | |
| Water Beetle | | |
| Squat Mayfly Nymph | | |
| Burrowing Mayfly Nymph | | |
| Dragonfly Nymph | | |
| Cased Caddis Larva | | |
| Alderfly Larva | | |
| Cranefly Larva | | |

the river ASH

# RIVERBANK INHABITANTS

There are many species of animal that are dependent on the river and its surrounding habitat or river corridor for food and shelter.

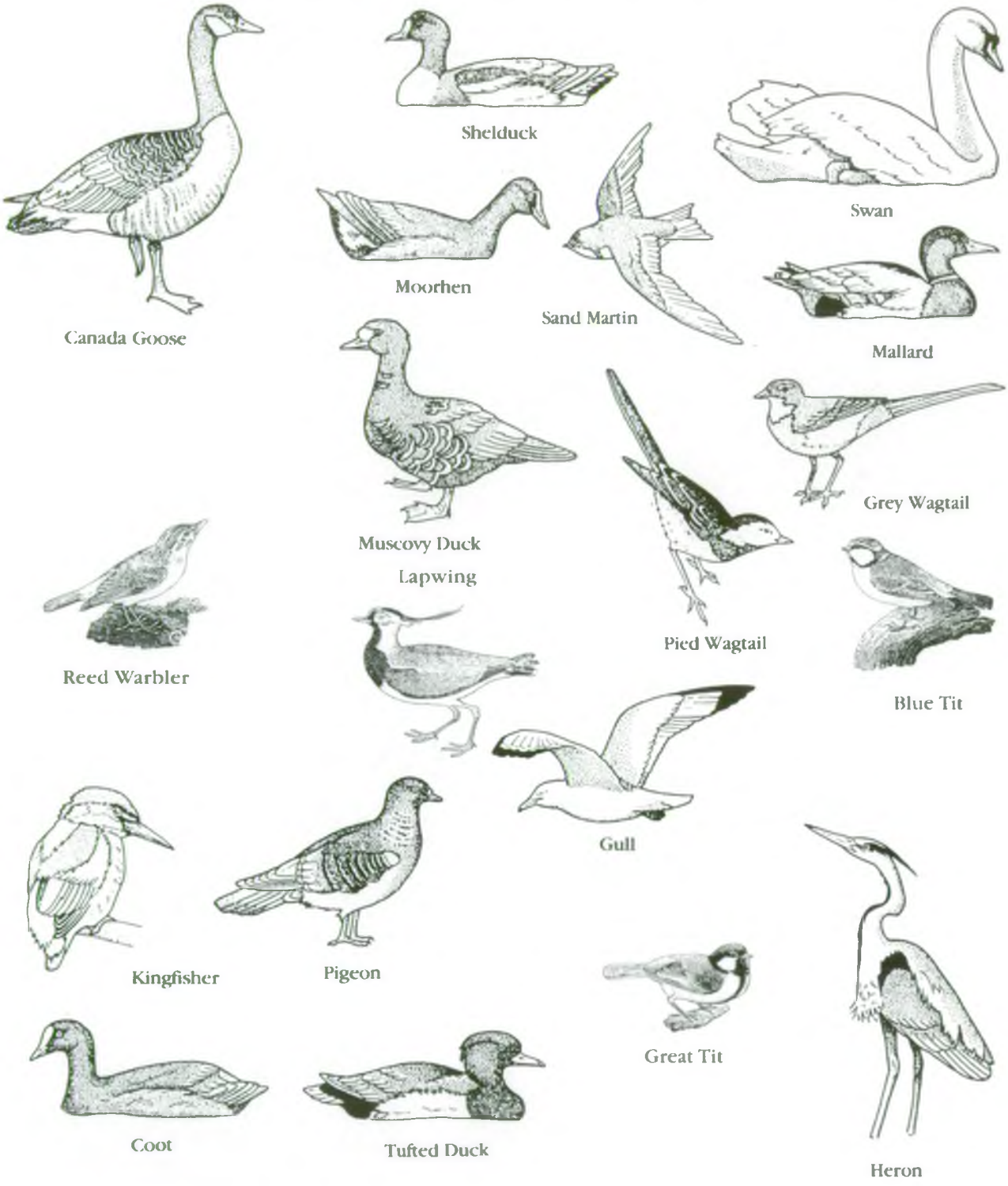
There are several species of bird that may be found on the river such as the coot which can often be seen in large numbers during the winter and nesting in reeds or on land at the water's edge, laying six to nine eggs. It feeds by diving, mainly feeding on weed.

The moorhen is a similar bird nesting on reeds or overhanging vegetation and even occasionally in pollarded willows or other trees on the water's edge. Five to ten eggs are laid in April and there may be up to three broods in one year. The bird can dive, feeding on aquatic vegetation and can also forage on land, feeding on fruits and grass.

Mallard breed on the more overgrown sections of the river, although will gather on more open sections of water during the winter. The species has a varied diet ranging from aquatic vegetation to frogs.

The heron is a much more specialist feeder. It selects some suitable shallows and then stands motionless or stalks forward slowly until some creature falls within the range of its long sharp bill. It will take frogs and chicks though it feeds primarily on fish.

Another predator is the kingfisher which commonly has a perch commanding a view of some suitable stretch of river, from which it dives obliquely into the water, when a minnow or stickleback or the young of some large fish comes into view.




the river ASH

| SPECIES | DATE | LOCATION |
|---|---|---|
| Blue Tit | | |
| Canada Goose | | |
| Coot | | |
| Gull | | |
| Great Tit | | |
| Grey Wagtail | | |
| Heron | | |
| Kingfisher | | |
| Lapwing | | |

| SPECIES | DATE | LOCATION |
|---|---|---|
| Mallard | | |
| Moorhen | | |
| Muscovy Duck | | |
| Pied Wagtail | | |
| Pigeon | | |
| Reed Warbler | | |
| Sand Martin | | |
| Swan | | |
| Tufted Duck | | |

# the river ASH

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