

# A Review of Freshwater Fish in Leicestershire and Rutland

By Andrew Heaton, County Recorder for Fish, 2013

## 1. Introduction

### 1.1 The Historic View

Lacking the trout-haunted chalk streams or salmon-spawning upland rivers, Leicestershire and Rutland (L&R) have tended to be little regarded in fishery terms. Even the main coarse rivers (Soar, Welland) were not seen as measuring up to the Severn or Thames. In “The Compleat Angler”, Izaak Walton’s only reference to Leicestershire is to name it as one of the counties through which the Trent flows (forming the county boundary for a relatively short distance near Castle Donington).

### 1.2 Previous Studies

There appear to have been few previous reviews or studies of fish populations related specifically to Leicestershire and/or Rutland. Browne (1889) listed L&R’s fish (also including details of fossil fish from the two counties). The wording used in the 1889 document was repeated almost exactly in Browne’s contribution to the Victoria County History (1907), though there is differentiation of River and Brook Lamprey in the 1889 publication, a distinction that was slightly confused in the VCH. Through the 20<sup>th</sup> Century, fish surveys were undertaken by the various water authorities, providing the information relevant to Leicestershire and Rutland mapped in Maitland (1972) and Davies et al (2004). Onions (2008, 2009) gave an overview of Leicestershire fish.

### 1.3 Recording Fish

Whilst the bulk of fish surveys are undertaken by Environment Agency (EA) fisheries teams, utilising techniques such as netting and electrofishing, other people are recording fish and generating distribution maps. It is largely EA surveys (and a few others such as British Waterways – now the Canal and River Trust) which provided the data for the fish atlas (Davies et al 2004), and this same data was captured by the National Biodiversity Network, allowing the production of species maps for Vice-county 55 (historical L&R). The Naturespot website has built upon the NBN, taking additional records submitted to it and generating maps for 8 fish species. The County Recorder for fish (Andrew Heaton) also collates casual records, producing county maps through Mapmate, and advised on a Leicestershire County Council public survey, “Fish Finders”, which from 2005 encouraged the submission of records of fish, with six species highlighted (Bullhead, Eel, Stickleback, Pike, Trout, Carp). The LCC species database holds some 2000 records related to fish. The national Mini Fish Survey was going to take information on smaller species from Leicestershire until its activities were curtailed by funding problems. All these sources have been used in compiling the species accounts (Section 5).

## 2. Categories of Leicestershire and Rutland Fish

### 2.1 Native and Exotic Species

A total of 37 freshwater fish species have definitely been recorded in the waters of Leicestershire and Rutland in recent times. (This includes the lampreys, though they are not technically fish, being a more primitive, jawless group). Of these, 24 are native species still present within the area (including one re-introduction), together with one species which is doubtfully native, and three native species which have become extinct in the counties. At least 9 non-native, exotic species have been introduced to local waters. These figures exclude hybrids; potential hybrids, especially amongst the Carp family, are discussed by Onions (2008).

### 2.2 Migratory Species in Leicestershire and Rutland

Many freshwater fish undergo local movements, but a few show major migration patterns between freshwaters and the marine environment. They may be:

- Anadromous – migrating from the sea to spawn in fresh waters. Leicestershire examples are River Lamprey and Atlantic Salmon.
- Catadromous – migrating from freshwaters to spawn in sea water. In Leicestershire, this applies to the European Eel.

### 2.3 Absent Species

Some categories of native fish are unlikely ever to be present in Leicestershire and Rutland (eg whitefish *Coregonus sp* of oligotrophic lakes), but a few species not yet definitely recorded in the two counties are possible future additions to the county fauna, and are worth looking out for:

- Sea Lamprey (*Petromyzon marinus*) – a migratory species, rare in England
- Smelt (*Osmerus eperlanus*) – returned to the Trent recently; migratory; uncommon in Eastern England
- Flounder (*Platyichthys flesus*) – marine species which comes regularly into freshwaters; inland limit is approximately 100 km from the sea – it might possibly come up the Welland (60 km from the Wash to Rutland county boundary) but it is probably unlikely to be seen in the Trent (about 120 km from Humber Estuary to Leicestershire county boundary).
- Introduced species – anglers are known for moving species around to increase sporting opportunities, despite this being illegal under fisheries legislation, and it is quite likely that non-native species such the Orfe (or Ide, *Leuciscus idus*) - with introductions scattered elsewhere around the country - might show up in the two counties at some point. (Indeed, there are suggestions that Orfe may already have appeared in the River Soar – Onions, 2008)
- A number of species were introduced into local waters during the 19<sup>th</sup> Century (Browne 1889) but appear not to have established permanent populations. These include American Brook Trout (*Salvelinus fontinalis*) to Thornton Reservoir, American Lake Charr (*S. namaycush*) to the Gwash and

Welland, and Largemouth Bass (*Micropterus salmoides*) to the Welland on the Rutland/Northamptonshire border.

#### 2.4 Red Data Book Species

The county Red Data Book for Lower Vertebrates (Heaton 2012) highlights seven fish species which are of particular conservation concern. These seven vulnerable species are Bullhead, Brown Trout, Brook and River Lampreys, Spined Loach, European Eel and Atlantic Salmon. Further details are given in the species accounts below, and conservation measures are set out in the Red Data Book.

### 3. Fish Habitats in Leicestershire and Rutland

#### 3.1 Rivers

3.1.1 Catchments - L&R are drained by four major river catchments. The bulk of Leicestershire drains to the north, with the Trent catchment including such rivers as the Soar, Wreake, Mease, western Sence (arising near Coalville), eastern Sence (Wigston/Blaby area) and Devon. The Trent basin has some of the poorest quality waters in the two counties. South-east Leicestershire and most of Rutland drains east, into the Welland catchment rivers including the Gwash and Chater. The southern tip of Leicestershire drains, via the Swift and the top end of the Avon, into the Severn catchment. A very small area of Rutland around Thistleton drains to the Witham.

3.1.2 Zones – Between them, these rivers encompass three of the riverine fish zones (see Davies et al 2004) – they are lacking the highest energy upland zone (Trout Zone) and the brackish/estuarine Flounder Zone – but they still display a full range of river species.

- The highest energy rivers with rather little plant growth, such as the Charnwood streams and parts of the western Sence, equate to the Grayling Zone; Grayling themselves are rather rare, but other typical species present include Trout, Bullhead, Minnow and Stone Loach.
- The slower, meandering, vegetated Barbel Zone is found in the Eye and the middle reaches of the Soar, and supports Chub, Dace, Roach and Pike.
- The largest rivers – the Trent, lower Soar and Welland, all slow, warm, nutrient-rich, silt-bedded – demonstrate the Bream Zone with, as well as Bream, typical species such as Gudgeon, Ruffe and Spined Loach.

#### 3.2 Stillwaters

3.2.1 Despite significant losses of traditional ponds to development and changing agricultural practices, there are probably more areas of open water in L&R than there have ever been. Gravel extraction has left large numbers of wet pits, notably along the Trent and Wreake. Reservoirs have been built over a couple of

centuries, some to feed canals, others for public water supply, culminating in the excellent habitat that is Rutland Water.

3.2.2 All these stillwaters can be defined in terms of their nutrient status, giving rise to different fish communities. Whilst there are no oligotrophic lakes (with the lowest nutrient levels) in L&R, mesotrophic lakes are represented by reservoirs such as Blackbrook, with fish including Rudd and Minnows. The great majority of stillwaters, though, are eutrophic, of the highest nutrient status, supporting Tench and Carp, whose activities serve to stir up nutrients: the natural Groby Pool and the canals such as Grantham Canal provide examples. Smaller ponds tend predominantly to harbour 3-spined Stickleback, though other species such as Crucian Carp, Roach and Perch may be present.

#### 4. Fish in their Leicestershire and Rutland Context

##### 4.1 Recreational interest

4.1.1 Fish are an important recreational resource in L&R: a search of the Internet reveals around 30 angling clubs in the two counties. The Environment Agency in 2012 sold 25,735 licences to addresses in L&R postcodes. This forms an important lobby arguing for clean, healthy rivers, though anglers occasionally support management practices which are not in the best interests of all fish species/river ecology (eg bankside tree clearance, removal of Grayling or Pike from Trout fisheries, stocking of Rainbow Trout). Onions (2009) considers fish populations in commercial fisheries.

4.1.2 From a sporting perspective (and lacking any sea fishing in the counties), fish can be categorised into three classes, each of which is represented in L&R:

- Game fish – species usually taken by fly fishing and often kept to eat: the salmonids (Salmon, Trout, Rainbow Trout, Grayling)
- Coarse fish – species usually taken with other natural or artificial baits and returned to the water: Pike, Carp and related species, Perch family, Eels
- Minor species – those species which are not angled for (though they may be collected as bait): Loaches, Minnow, Sticklebacks, Bullhead

4.1.3 Close seasons have been implemented to protect fish during spawning periods. The close seasons are as follows, for Midlands Region of the EA (Trent and Avon catchments) and for Anglian Region (Welland and Witham):

- Coarse fishing close season on rivers, streams and drains: Midlands 15 March - 15 June; Anglian 15 March - 15 June
- Stillwater coarse fisheries – no legal close season, but some clubs/landowners operate their own close period – close season at some stillwater SSSIs (8 in Leics) 15 March - 15 June
- Eels – no close season

- Salmon: Midlands 8 Oct - 31 Jan; Anglian 29 Sept – 28 Feb
- Brown Trout: Midlands 8 Oct - 17 March; Anglian 30 Oct – 31 March
- Rainbow Trout: Midlands 8 Oct - 17 March (rivers, streams, drains, canals; no close season on stillwaters); Anglian 30 Oct – 31 March

#### 4.2 Interactions with other species

4.2.1 Prey - With the notable exception of the Grass Carp's vegetation-based diet and the predatory fish-eating species (eg Pike, Zander, Perch), the fish found in local waters feed mainly on invertebrates, with a small vegetation component. The majority of waters in Leicestershire and Rutland are sufficiently healthy that they support good populations of aquatic invertebrates, which in turn support healthy fish populations.

4.2.2 Birds – Fish are themselves predated by a number of other species.

Around 35 species of piscivorous birds have been recorded in the two counties, though only a dozen are resident or recorded regularly (Heaton 2013). These will target different prey items, size depending on the species. Kingfisher, Little Grebe, Common Tern and Little Egret prey upon small fish – Minnows, Sticklebacks and Stone Loach, all common in Leicestershire and Rutland. Great Crested Grebe, Goosander and Red-breasted Merganser take a wide variety of medium-sized fish. Grey Herons go for larger fish, as do Bitterns (specialising in feeding on Eels), Cormorants (loathed by anglers for apparently impacting on fish populations, taking whatever species are available) and Ospreys. Osprey diet has been studied at Rutland Water: adults feed on Trout, Roach, Pike, Bream and Perch, whilst the young are fed disproportionately on Roach as well as Perch, Trout and Rudd.

4.2.3 Mammals - Three aquatic mammals feed on fish. The most specialised fish-eater is the Otter, which will take whatever fish are most readily available, whilst concentrating on the slower-swimming coarse fish, particularly Eels. Otters faced extinction in the Midlands in the 1960s, but latest survey work (the Fifth England Survey, 2009) shows a dramatic return – Otters are well-established in the Welland catchment and present in the Trent catchment and the Avon, all these populations being linked by Otters using the corridor of the Grand Union Canal. Feeding behaviour of Otters has been studied in Leicestershire canals, prey being small to medium-sized fish (based on scale size), with occasional crayfish, birds and amphibians. Mink have colonised waterways in L&R in recent years, notably the Soar; they are opportunist feeders, at home in the water, and ready to take fish, especially Roach, Eels and salmonids. Water Shrews will take small fish such as Minnows, immobilising them with venom. Water Shrews are found in west Leicestershire, but rarely in east Leicestershire or Rutland.

4.2.4 Other Predators – For Grass Snakes, fairly common in L&R's river valleys and canals, fish are the most important prey after amphibians; Gudgeon as large as 12 cm have featured in their diet. The smallest fish (Sticklebacks, Minnows) and young fish of all kinds fall prey to carnivorous invertebrates such as the larger diving beetles (adults and larvae) and later-stage dragonfly larvae. Crayfish, especially the larger introduced species such as Signal Crayfish (found around the Gaddesby Brook in Leicestershire) both compete with fish for food and actively feed upon fish eggs.

### 4.3 Conservation

4.3.1 The need for conservation measures is set out in the county Red Data Book (Heaton 2012), for seven highlighted species in particular. The principal measures relate to improving water quality (currently being expedited by the Water Framework Directive), sensitive river management and controls on the introduction of alien species, with the need to respond to the threat of climate change looming over all. The traditional response to pressures in the terrestrial environment – the identification and designation of nature reserves – does not work well for fish: unless entire catchments are designated and managed, areas set aside to protect fish will always face pressures from the impact of activities outside the designated area.

4.3.2 Nevertheless, Leicestershire has one SAC (European Special Area of Conservation), the River Mease, which is designated in part for fish species (Spined Loach and Bullhead). Fish will be given some protection within the River Eye, a riverine SSSI, and the several lake/reservoir and canal SSSIs. Several Wildlife Trust nature reserves support fish populations, including RDB species: Brook Lamprey breeding at Lea Meadows and present at Ulverscroft; native brown trout at these same two sites; Spined Loach at Mountsorrel Meadows and Rutland Water; Eels at Rutland Water; and Bullhead widespread, at Rutland Water, Dimminsdale, Kelham Bridge, Lea Meadows, Ulverscroft and Mountsorrel Meadows. Appropriate management of these reserves needs to be considered.

## 5. Species Accounts/Checklist

Status: native/introduced; common/rare, etc

VCH: status in Victoria County History (1907)

RDB: Red Data Book – reasons for inclusion and conservation measures

Notes: other narratives, including presence in Wildlife Trust nature reserves

### 5.1 **River Lamprey** (Lampern) *Lampetra fluviatilis*

Status: Native. Migrates to and from the sea, breeding in freshwaters; rare, found only in the Gwash and its North Brook tributary.

VCH: Sparingly found in some of the streams of the county (may be confusion with Brook Lamprey).

RDB: Both a Habitats Directive and UK Biodiversity Action Plan species – differs from Brook Lamprey in being a migratory species. As well as the pressures of river management removing riverine features necessary for its reproduction, there are potential problems with obstructions to migration. Conservation of spawning gravels and larval silt beds is essential, and there may be a need to remove obstacles to migration.

Notes: Feeds only at sea (using its sucker), not in freshwaters.

### 5.2 **Brook Lamprey** *Lampetra planeri*

Status: Native. Rare, found only in the Gwash and Chater and smaller Charnwood rivers (including the Black Brook and River Lin).

VCH: Sparingly found in some of the streams of the county.

RDB: A HD and UKBAP species. River management for flood defence purposes has removed the riverine features required to sustain the species lifecycle. Both silt beds, which are home to the ammocoete larvae, and gravel spawning areas need to be carefully protected.

Notes: Found in two nature reserves – Lea Meadows, where it breeds, and Ulverscroft..

### 5.3 **Common Sturgeon** *Acipenser sturio*

Status: Native but extinct. Previously a rare vagrant to the lower River Soar and River Trent in the nineteenth century.

VCH: Rare and accidental straggler by way of the Trent – two records (no dates given): River Soar at Loughborough, and River Smite (though this is largely in Nottinghamshire).

RDB: Mentioned as an extinct species only.

Notes: A huge fish, growing to five metres. Rarely enters British freshwaters nowadays, though may be found around the coast.

### 5.4 **Sterlet** *Acipenser ruthenus*

Status: Introduction. One caught in the Ashby Canal near Pares Bridge, July 2010.

VCH: No mention.

RDB: No mention.

Notes: Originally from eastern Europe, this species would have been acquired as an ornamental and had probably outgrown its pond or tank and had been released (illegally) into the Ashby Canal (Heaton 2010).

### 5.5 **Atlantic Salmon** *Salmo salar*

Status: Native but extinct (until recent reintroduction). Occurred in the lower Soar in the nineteenth century; formerly spawned at Kings Mills, on the Trent at Castle Donington; re-introduced to the Trent catchment in the last few years. Migratory, breeding in gravel beds in freshwaters and spending time at sea.

VCH: Must be regarded as rare.

RDB: Appears in the RDB as both a HD and UKBAP species. Formerly fairly common in the Trent, spawning at Kings Mills near Castle Donington, it became locally extinct by the 20<sup>th</sup> century as a result of obstacles to migration. With many of the obstacles removed, a run of salmon has recently been re-established in the Trent, and Leicestershire has local responsibility for maintaining suitable conditions for the run.

Notes: The Kings Mills area is no longer suitable for spawning due to poor water quality (the reintroduced population is spawning in the River Dove in Derbyshire/Staffordshire).

### 5.6 **Brown Trout** *Salmo trutta*

Status: Native. Fairly common in the cleaner rivers and streams, including the upper Soar, Chater and western Sence; mainly introduced/restocked in lakes and rivers, the pure native breeding populations (*Salmo trutta fario*) probably only surviving in fast-flowing streams in Charnwood Forest.

VCH: Sparingly distributed in the county – Bradgate: strictly preserved, abundant, attains fair size – Thornton Reservoir at one time “the best bit of still-water trout fishing in England”

RDB: Appears in the RDB as a UKBAP species. Widespread (maintained by stocking) and under no threat as a species, the concern is for the genetic integrity of the few surviving native breeding populations. Although no genetic studies have been done to confirm this, it is suspected that naturally-spawning native brown trout populations are found in only a few rivers such as the top end of the Lin, Rothley Brook, Soar Brook and Black Brook. The main conservation measures are for the Environment Agency to refuse consents for stocking trout into river reaches where native populations are still thought to exist.

Notes: The migratory form, Sea Trout *Salmo trutta trutta*, has not definitely been recorded in the two counties.

### 5.7 **Rainbow Trout** *Oncorhynchus mykiss*

Status: Introduction. Introduced for angling purposes into the western Sence, some Rutland rivers (such as the Gwash and Eye Brook), and lakes/reservoirs including Rutland Water.

VCH: Not mentioned.

RDB: Not mentioned.

Notes: Its native distribution is in the rivers on the west coast of North America.



### 5.8 **Grayling** *Thymallus thymallus*

Status: Native. Uncommon, recorded only from the Gwash, Chater and Welland, and introduced to the western Sence; formerly occurred in the Soar.

VCH: Limited to the Soar at its confluence with the Trent.

RDB: Not listed.

Notes: Some change in distribution since VCH.

### 5.9 **Pike** *Esox lucius*

Status: Native. Common in larger, slow-flowing rivers (especially the Soar, Wreake and Welland), and possibly under-recorded in stillwaters (lakes and canals – strong presence in the Grand Union).

VCH: Commonly distributed, attaining large size in ponds such as those of Bosworth and Saddington.

RDB: Not listed.

Notes: The largest native predatory fish, found in several Wildlife Trust nature reserves: Cossington Meadows, Dimminsdale, Mountsorrel Meadows, Rutland Water. No respecter of rarity, a Pike is noted (in Fray et al 2009) to have eaten a juvenile Red-necked Phalarope at Swithland Reservoir in 1995.

### 5.10 **Common Carp** *Cyprinus carpio*

Status: Introduction. Common but under-recorded in lakes (noted at Wanlip Gravel Pits and Snibston Grange), a few records from larger rivers (Soar, Welland) and the Ashby Canal.

VCH: Occurs in some parts of River Soar and abounds in pools such as those of Groby and Saddington.

RDB: Not listed.

Notes: Native to eastern Europe/western Asia. Onions 2008: introduced after 1530 – previously rare in Leicestershire – now most popular fish for anglers. Fishery stocks frequently include common carp of the form “mirror carp” (with few, large scales), whilst “leather carp” (almost scale-less) may also be present.

### 5.11 **Chinese Grass Carp** (White Amur) *Ctenopharyngodon idella*

Status: Introduction. Introduced to at least three sites, including the Oakham Canal.

VCH: Not mentioned.

RDB: Not listed.

Notes: Actually from eastern Russia. Introduced to control aquatic weed growth.

### 5.12 **Crucian Carp** *Carassius carrasius*

Status: Possibly native. Uncommon in rivers, found only in the Soar (at Leicester) and Welland; probably common in lakes.

VCH: Occurs sparingly in some ponds of Leicestershire.

RDB: Not listed.

Notes: Some authorities suggest Crucian Carp are native to south-east England; whether this includes Leicestershire is not clear. Present at Rutland Water.

#### 5.13 **Goldfish** *Carassius auratus*

Status: Introduction. Common in ornamental ponds but few records from the wild (River Soar at Abbey Park, Leicester and the Welland at Bringhurst appear to be the only recorded sightings).

VCH: Not mentioned.

RDB: Not mentioned.

Notes: Originally an Asian species, Onions (2008) categorises Goldfish as “escapees” in canals and rivers. Probably more frequent in the wild but not reported. Feral Goldfish revert to a brown/bronze colouration and may be mistaken for Crucian Carp; indeed, it has been suggested that Goldfish are simply a form of Crucian Carp.

#### 5.14 **Barbel** *Barbus barbus*

Status: Native. Uncommon, River Soar only. (Also present in the Anker just over the border in Warwickshire).

VCH: Occurred occasionally in Soar, near junction with Trent and Derwent, it was frequently caught below Loughborough.

RDB: Not listed.

Notes: Being introduced to waters across the Midlands, including to stillwaters (eg Snibston Grange), though it is primarily a river fish. The Barbel is at the northern edge of its natural European range in the east of England. Not recorded from any nature reserves.

#### 5.15 **Gudgeon** *Gobio gobio*

Status: Native. Common, widely distributed in both larger and smaller rivers (notably the Soar, Wreake/Eye and Welland), and in the Grand Union Canal.

VCH: Common in the Soar and in various parts of the county.

RDB: Not listed.

Notes: A common species, found at Mountsorrel Meadows and Rutland Water nature reserves.

#### 5.16 **Tench** *Tinca tinca*

Status: Native. Records fairly frequent, scattered, mainly from larger rivers, including the lower Soar; apparently well-represented (though under-recorded) in lakes. Tench have been noted in Kirby Muxloe Castle moat.

VCH: Not very common, previously only in ponds, stagnant pools, reservoirs and stews.

RDB: Not listed.

Notes: Probably more frequent than it appears in stillwaters. Found at Cossington Meadows, Dimminsdale, Rutland Water nature reserves.

5.17 **Silver Bream** (White Bream) *Blicca bjoerkna*

Status: Native. Apparently locally extinct – it is found in other parts of the Trent and Welland but there are no recent records from Vice-county 55.

VCH: Occurs in Soar and Trent.

RDB: Not listed, but perhaps should be, on account of its rarity.

Notes: Possibly lost from the county since VCH.

5.18 **Common Bream** (Bronze Bream) *Abramis brama*

Status: Native. Fairly common, scattered records in larger rivers (Soar, Wreake, Gwash) and stillwaters including the Grand Union Canal.

VCH: Generally distributed in the Soar and Trent.

RDB: Not listed.

Notes: Browne (1889) : Generally distributed in the Soar and Trent – at Kegworth, many shoals of large sized fish. Onions (2009): for several years, the record rod-caught Bream was a specimen from Swithland Reservoir.

5.19 **Bleak** *Alburnus alburnus*

Status: Native. Uncommon – only regularly found in River Soar, also one site in the Avon.

VCH: Widely diffused.

RDB: Not listed.

Notes: Decline seen since VCH. Mountsorrel Meadows is the only nature reserve where Bleak have been recorded.

5.20 **Minnow** *Phoxinus phoxinus*

Status: Native. Common, widely distributed in rivers and streams, including the Soar, eastern and western Sence, Mease/Gilwiskaw Brook, Rothley Brook and smaller watercourses such as the Sibson Brook and Langton Brook.

VCH: Generally distributed in sharp streams throughout the county.

RDB: Not listed.

Notes: Common even in small streams; found at several Wildlife Trust nature reserves: Lea Meadows, Lyddington Meadow, Miles Piece, Rutland Water.

5.21 **Topmouth Gudgeon** (False Harlequin) *Pseudorasbora parva*

Status: Introduction. One population in a stillwater fishery near Melton Mowbray.

VCH: Not mentioned.

RDB: Not mentioned.

Notes: Originally from Asia. Population identified in 2013 – the first record for the East Midlands. Its presence is of concern as it is a very invasive, rapidly-reproducing species.

#### 5.22 **Rudd** *Scardinius erythrophthalmus*

Status: Native. Fairly uncommon; few scattered records in stillwaters, such as the Grand Union Canal, the isolated section of the Ashby Canal at Moira, and Scraftoft Lake – also few records in the Soar and other large rivers.

VCH: Occasionally occurred in Soar, and in a pool at Welham.

RDB: Not listed.

Notes: May be more common than it appears, though Rutland Water is the only nature reserve where it has been recorded.

#### 5.23 **Roach** *Rutilus rutilus*

Status: Native. Common in larger rivers (such as the eastern Sence, Soar and Wreake) and canals (Ashby, Grand Union).

VCH: Commonly distributed.

RDB: Not listed.

Notes: One of the commonest species locally, found at several nature reserves: Cossington Meadows, Dimminsdale, Mountsorrel Meadows, Rutland Water.

#### 5.24 **Chub** *Leuciscus cephalus*

Status: Native. Common in large rivers, including the Soar, Wreake, Welland and eastern and western Sence.

VCH: Generally distributed, attaining a good size.

RDB: Not listed.

Notes: A very common species, though found at only three nature reserves: Mountsorrel Meadows, Rutland Water and Wanlip Meadows. Onions (2008) regarded Chub as the species “most at home in Leicestershire rivers”.

#### 5.25 **Dace** *Leuciscus leuciscus*

Status: Native. Common in large and some smaller rivers, notably the Soar, Wreake, Gwash, Welland and western Sence.

VCH: Generally distributed in sharp streams and backwaters of the rivers.

RDB: Not listed.

Notes: Present in only two nature reserves: Mountsorrel Meadows and Rutland Water.

#### 5.26 **Spined Loach** *Cobitis taenia*

Status: Native. Uncommon but fairly widespread, found especially in the Mease, as well as the western and eastern Sence, Upper Soar, Trent, Anker and Welland, and a few smaller rivers (Swift, Hooborough Brook, Barkby Brook) and at Rutland Water.

VCH: Occurs sparingly in some few streams.

RDB: A UKBAP species also protected by the HD: the River Mease SAC has been designated partly for this species. The main threat to populations is river management for flood defence, removing weed during the spawning period as well as bottom sediments in which

the fish lie up. River managers need to avoid these problems where spined loach are known to be present.

Notes: In its native range, the species is restricted to eastern England. It is found in two nature reserves (Rutland Water, Mountsorrel Meadows).

#### 5.27 **Stone Loach** *Noemacheilus barbatulus*

Status: Native, Common and widely distributed in smaller rivers and streams. Including the Swift, Rothley Brook, Gaddesby Brook, Wreake, Mease/Gilwiskaw, eastern and western Sence, Soar, Chater and Charnwood streams

VCH: Generally distributed: Anker, Sence, Smite, Soar, Trent and Wreake.

RDB: Not listed.

Notes: May suffer predation by Signal Crayfish in the Gaddesby Brook. Present at Dimminsdale, Kelham Bridge, Mountsorrel Meadows, Rutland Water nature reserves.

#### 5.28 **Danube Catfish** (Wels) *Silurus glanis*

Status: Introduction. Introduced to at least one site, possibly two, in Leicestershire.

VCH: Not mentioned.

RDB: Not mentioned.

Notes: Native to large rivers in central and eastern Europe. There are concerns over a species which can grow to such a large size (often up to 2 metres) and may predate native species.

#### 5.29 **Armoured Suckermouth Catfish** *Hypostomus plecostomus*

Status: Introduction. One caught in the Grand Union Canal at Wigston in 2009.

VCH: Not mentioned.

RDB: Not mentioned.

Notes: Originally from South and Central America, this specimen probably outgrew its pond or tank and was released, illegally, into the Grand Union Canal.

#### 5.30 **European Eel** *Anguilla anguilla*

Status: Native. Migratory, journeying to breed in the sea. A strange distribution in L&R – all around the fringes of the counties (in watercourses such as the Soar at Kegworth, Welland, Gwash/North Brook, Gilwiskaw Brook and Sibson Brook) but rather rarely in the centre. Formerly common but has suffered a recent decline.

VCH: Commonly distributed in the county (Browne 1889 refers to “both counties”).

RDB: Subject to the Eel Regulation and a UKBAP species, Eels have seen a drastic decline in numbers in recent years, for which the exact cause is not known. Possible factors include overfishing, obstructions to migration, parasites, pollution, climate change possibly leading to movements in the Gulf Stream (which carries juvenile Eels into European waters) – measures may be needed to tackle any or all of these.

Notes: Now one of the most threatened species of fish. The only Wildlife Trust reserve it has been found in is Rutland Water. Eels have the ability to move over land in damp conditions, which makes its failure to colonise the bulk of Leicestershire even more baffling.

### 5.31 **Three-spined Stickleback** *Gasterosteus aculeatus*

Status: Native. Common and widely distributed in stillwaters and smaller rivers (including the Mease/Gilwiskaw Brook, Rothley Brook, Swift, eastern and western Sence, Soar, Burleigh Brook and many other small brooks).

VCH: Commonly distributed.

RDB: Not listed.

Notes: The commonest freshwater fish in ponds, found at six Wildlife Trust nature reserves, including Kelham Bridge and Wymeswold Meadows. A most unusual record (from Fray et al 2009) is of a Robin taking sticklebacks from a pond at Scraftoft in 1990.

### 5.32 **Nine-spined Stickleback** (Ten-spined stickleback) *Pungitius pungitius*

Status: Native. Uncommon, mainly found in the River Soar, and in some small brooks (mainly in Charnwood).

VCH: Generally distributed, but perhaps not as common as three-spined stickleback.

RDB: Not listed.

Notes: Possible decline since VCH. The smallest native freshwater fish, rarely larger than 6 cm, it is found at Cossington Meadows and Rutland Water nature reserves.

### 5.33 **Burbot** *Lota lota*

Status: Native but extinct in Leicestershire (and in Britain). Occurred in the Trent, the Soar below Loughborough and the Welland in the 19th Century.

VCH: Occurs plentifully in Trent, occasionally taken in Soar about Kegworth and one at Zouch Mills near Loughborough.

RDB: Mentioned as extinct species.

Notes: Significant change since VCH – became extinct due to a combination of factors: pollution, river management, over-exploitation – may have disappeared from Leicestershire by the beginning of the 20<sup>th</sup> Century. A reintroduction from continental stock is being considered.

### 5.34 **Perch** *Perca fluviatilis*

Status: Native. Common in larger rivers (including the western Sence, Soar, Wreake), also canals (notably the Grand Union) and lakes.

VCH: Commonly distributed.

RDB: Not listed.

Notes: Readily identified by stripes and dorsal fin, perch are found at several Wildlife Trust nature reserves (Charnwood Lodge, Cossington Meadows, Rutland Water, Dimminsdale) as well as Nature Alive in Coalville.

5.35 **Ruffe** (Pope) *Gymnocephalus cernua*

Status: Native. Scarce, few widely scattered records, some from large rivers including the eastern Sence and Wreake, others from the Ashby and Grand Union Canals.

VCH: Occurs in most canals and small streams especially those in Charnwood Forest.

RDB: Not listed.

Notes: Significant decline since VCH. Present at Rutland Water.

5.36 **Zander** (Pikeperch) *Stizostedion lucioperca*

Status: Introduction. Uncommon but increasing, found especially in the Ashby Canal and also the Soar at Watermead; also present at Rutland Water.

VCH: Not mentioned.

RDB: Not mentioned.

Notes: A significant predator of native species, on the increase, and therefore of some concern. Its natural distribution covers central and eastern Europe.

5.37 **Bullhead** (Miller's Thumb) *Cottus gobio*

Current Status: Native. Common and widely distributed in both smaller and larger rivers; found especially in the Soar, Gwash, Chater, Swift, Charnwood streams including Black Brook, Rothley Brook, Wreake, Eye, Langham Brook, eastern and western Sence, Mease/Gilwiskaw, Hooborough Brook, Gaddesby Brook and Sibson Brook.

VCH: Commonly distributed.

RDB: Despite being common and widely distributed, Bullheads are a HD species, the point being that, whilst being vulnerable on the continent, Bullhead populations are strongest in the UK, and thus the UK has particular responsibility for their conservation. Generally showing healthy populations in L&R rivers, there may be some pressures on bullheads from poor water quality in some rivers. The River Mease SAC is partly designated for this species.

Notes: Found on seven Wildlife Trust reserves. May suffer predation of adults and eggs by Signal Crayfish in the Gaddesby Brook.

## 6. The Future

### 6.1 Likely Changes/Pressures

6.1.1 Climate change is likely to be the major pressure on fish populations in future, benefitting warmwater species but causing problems for coldwater species. As well as temperature increases, there are likely to be knock-on effects of greater abstractions affecting wetlands, and changes to ocean currents – migratory species suffer pressures both in freshwaters and at sea. Water quality may also be impacted, though, in theory, the Water Framework Directive should bring improvements.

6.1.2 Impacts on fish habitats, notably river management for flood defence and navigation, are likely to continue and, again, climate change may bring a need for more radical flood defence measures. Introduction of alien species will continue to be a problem, both of competitive/predatory fish (eg Danube Catfish) and of invasive plants and invertebrates that have impacts on fish habitats.

### 6.2 Species Range and Status

6.2.1 The main impact of climate change will be to bring about increases in water temperatures. This will benefit warmwater species (eg Carp, Tench) which will have a longer breeding season, but may disrupt breeding behaviour for coldwater species such as Trout and Grayling. Migratory species such as Eels and Lampreys will face particular problems, and populations may continue to decline.

6.2.2 Hopefully, conservation measures, as set out in the RDB, will be implemented, leading to a strengthening of populations of species such as native Brown Trout and Spined Loach. Following the success of the Salmon reintroduction project, Burbot may also be the subject of a reintroduction. Nature reserves in the two counties should seek to conserve the full range of native species.

### 6.3 Recording

6.3.1 The EA has ever fewer resources, and fish surveys are likely to be ever more tightly focussed (related to Water Framework Directive). Other fish recorders need to put the emphasis on protected species (including European Protected Species) and fish in designated sites and nature reserves. Angling clubs can help with recording/distribution mapping (and indeed this was the original idea of Fish Finders). More records would be welcomed generally; they are probably most easily submitted through Naturespot.

### 6.4 Conclusions

6.4.1 Leicestershire and Rutland support a varied fish fauna, comprising some 28 native species and nine introductions, the latter number gradually increasing. There are healthy fish populations in both running and still waters. Seven fish are highlighted in the RDB as requiring special conservation measures. Future threats to fish include climate change, river management and introductions. More effort is required on recording and distribution mapping of fish in the two counties.



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