The Wildlife of the New Cut

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from information provided by the Friends of the Avon New Cut

The New Cut, three kilometres long, was built between 1803 and 1809, a vital part of the complex project to create the world's largest tide-free dock area, known as the Floating Harbour (because the ships in it could float at all states of the tide) or City Docks. Essentially the scheme dammed the river Avon in two places, at the site now known as the Underfall Yard by the Cumberland Basin, and up stream at Netham. To maintain a constant level of thirty three feet above low tide, water was fed into the dock system by a canal from Netham to Temple Meads, and the weir at Netham ensured that the water lost at Cumberland Basin when ships locked in or out to go down stream to sea was automatically replaced. The New Cut was built to ensure that flood water coming down the Avon would not flood into the docks, and it also enabled small vessels to lock into the navigable Avon either at Bathurst basin or at Temple Meads. The Avon had been made navigable to Bath by locks in the 18th century, and shortly after the construction of the Floating Harbour the navigation was extended to London by the Kennet and Avon canal. This created the 19th century equivalent of the M4, and it cut the freight distance to London in half, as previously all freight traffic on the Severn that wanted to get to London had to go round Cornwall, and also round Kent, a journey of well over 200 miles, subject to all the risks of storms at sea and dangerous currents. The canal reduced the journey to 120 miles of calm horse-drawn travel. It is worth recalling too that the barges that worked the canals carried 70 tons, twice the load of the largest juggernaut on the motorways today.

Thus the New Cut had to be tidal, to enable vessels coming up the Avon on the tide to lock into the tide free system. Today, cutting right through the heart of the city from Cumberland Basin to Temple Meads, the New Cut has twelve metres of tidal water racing up and down it twice a day, creating a very remarkable wildlife corridor, and a vivid reminder of Bristol's past. A brief calculation suggests that every day around one million cubic metres of water move through the Cut. One important consequence is that, while the Floating Harbour is fresh water, the water in the New Cut is saline, and the vegetation along its banks has some plants characteristic of saltmarsh. The existence of the New Cut has ensured that even the worst floods on the River Avon pose no threat to the city centre, despite the fact that it is virtually at sea level, though the River Frome floodwater has had to be diverted under the Downs in modern times. The salinity of the water in the cut varies with the tides and the quantity of land water coming down the Avon, and normally the water is the same muddy brown as the estuary itself, though just occasionally the water mysteriously runs clear. The salinity levels are also affected by the fact that fresh water floats over salt water, and that as the tide rises the fresh water is being pushed backwards. The Cut is thus a genuinely wild, untamed, habitat, not neat, not pretty, a sharp and brilliant contrast to the to the human technology of the city.

The banks of the cut have become clothed in a remarkable assemblage of trees and plants. In some places the bank is a vertical masonry or concrete wall, in others a near vertical rock face, and in others a sloping bank, sometimes down to a wall. Only a few species can withstand being submerged by saline water, and below that level there is tidal mud. Trees dominate much of the sloping bank, especially on the south side, and form a green corridor

through the heart of the city. Some have been planted on the pavements along the edge, mostly London Plane, but also Norway Maple, and some Common Lime on a section of the North side. The City has planted some interesting trees on the Redcliffe Roundabout, including Black Pine and Bhutan Pine, Sweet gum and Tulip Tree, some unhappy looking Silver birch and a Weeping Willow. Other species planted along the bank include Grey Alder and Grey Poplar, one Pissard's Plum, and several garden forms of Prunus on the south bank, and there is an extraordinary very young White Mulberry. Most of the trees on the slopes the trees are wholly self sown, and mostly quite young, few being over fifty years old, though there are trees at the seaward end on the South side that started life a century or more ago. The most frequent species are Sycamore and Ash, with an understorey of Elder and Hawthorn, and occasional wild and garden privet, Snowberry, Japanese Spindle and Hazel, with Buddleia and Bramble sprawling everywhere. There are a large number of Wildling Apples, from apple cores, some delicious, and very many Cherries, some producing luscious looking fruit. There are several Rowans, a Whitebeam and a Swedish Whitebeam. The most unusual trees are the two huge Figs, each of which sprawl along about 20 metres of bank on the South side. There is quite a lot of regeneration, with young Apples, suckering English Elm in one place, suckering White Poplar in another, Norway Maple, Ash, one or two baby Horse Chestnuts, a couple of young Oaks, and Sallows and four young Almonds. All in all there are 43 species of trees and shrubs, a very remarkable collection whose nectar and fruit support a very wide variety of insect and bird life.

Below the point that the highest tides reach there are nine saltmarsh species. Saltmarsh is the wildest habitat in Britain, the least influenced by man, and there are around twenty common species that make up the flora of the Severn saltmarsh. The first species to rise from the mud of the New Cut is Sea Aster. This flowers in late June, though often has no petals. A little higher is usually Sea Couch Grass, and often mixed in with it Clustered Dock and the grey leaves of Spear-leaved Orache. Cord Grass comes next, though out on the Severn it is usually the first to bind the mud. It is often mixed with English Scurvy Grass, a plant with thick green leaves and white flowers in early May. It is a close relative of Danish Scurvy Grass which can be found in April lining all our motorways, and many major roads, occupying the thin strip that has absorbed the salt from winter de-icing. Just higher than that, and clinging to a few vertical surfaces there is Sea Plantain and Greater Sea Spurrey. Both these are normally part of the broad section of saltmarsh that is inundated only half a dozen times a year. Finally at the top of the tidal range there is Wild Celery, a bright green umbellifer with small white flowers in late June. Above it Hemlock Water Dropwort, essentially a plant of freshwater, steadily increases in numbers upstream, emphasising the fact that the water of the highest tides is actually fresh water riding over the saline water below. It is interesting that there is no Indian Balsam, which cannot abide any salt at all.

Above the tide, beneath the trees, and on more open sections, especially on the north side, there are at least 123 species of self-sown native wild plants, and ten species of garden plants that have either been thrown out or planted. The Flora of the Bristol Region mapped all plant species by 1km square, and the percentage occurrence is a good guide to how rare or common each species is. There are 31 species that are Very Common in the region, present in 80% or more of squares; 35 Species are Common, present in between 60 and 80% of squares; 46 species are Not Uncommon, between 40 and 60%; 89 species are Uncommon, between 20 and 40% and all other species are Rare. The best way to assess the significance of the New Cut plant species (other than trees and shrubs, and the saltmarsh species) is to look at their frequency structure. The following table gives the basic structure.

	Species	Percent
Very Common	26	22
Common	18	15
Not uncommon	21	18
Uncommon	20	17
Rare	35	29

Table. 1 The number and proportion of 120 native self-sown species on the cut that fall into the five frequency classes.

As might be expected the very common species include 83% of all the local species that fall into this category, and the common species are half of all the regionally common species. 45% of the not uncommon species are also present. There is a full list in the appendix, which also shows their regional percentage frequency. Some of the plants that fall into the uncommon and rare categories are worth a mention. Surprisingly Bluebells can be found, though they may well be the Spanish species and a result of garden throw-outs. There is only one example of Japanese Knotweed, a spreading alien species that is common both upstream and in some places downstream of the New Cut, but which fortunately has not colonised the Cut. Canadian Fleabane is widespread on the north side, and is a common urban species, but much less common outside Bristol. Alexanders is a plant that seems to like being close to the sea, as it is rarely found far from it. It is less frequent along the Cut than might be expected. Ivy Broomrape is common, especially on the North side because Ivy is common there. Chicory is an attractive blue flower, which flourishes in poor soil and waste spaces, but is rare in the region, and only found by the Create Centre. Giant Hogweed is a magnificent but rare alien whose seeds float down rivers, and there are two fine plants on the South side. Touching it can cause an allergic reaction for some people, so there is a campaign to eradicate it. Mexican Daisy is a very attractive alien, common in Bristol walls. Hop is occasional in the region, and can be found on both sides. Dusky Cranesbill and Monkshood are both likely to be garden throw outs; or perhaps intentionally planted.

A wide variety of native plants will attract a wide variety of insects. 21 butterfly species have been seen at “Butterfly Junction” near the Create Centre, attracted by the excellent mix of shrubs and native species in the grass. Nettles and brambles, which abound along much of the cut, are the food species for the larvae of several moths and butterflies, and the nectar provided by the very wide range of flowers over most of the year will provide food for many insect species.

A range on insects, berries, and water-borne food will attract many birds. Some 36 species have been recorded since 2003. The mudbanks seem to have little food, and only two wader species have been seen. The Redshank occasionally come this far up the river in cold conditions, and Common Sandpiper use the cut as a migratory corridor in spring. The commonest water birds are the gulls, Black-headed in winter, and Herring and Lesser Black-backed both winter and summer. Much of the time they seem to use the water for bathing, or simply loafing. Some of them carry large coloured Darvic rings with letters and numbers. They have been ringed over the past thirty years by Peter Rock, who has a detailed history of hundreds of his birds. As they can live for forty years or more every record is of interest and the details of the ring and colour should be sent to him at pete.rock@blueyonder.co.uk. It is

amazing to think that the first pair bred in Bristol in 1970, and that the population of 2500 pairs is increasing at a constant rate of 10% a year. The only effective way to check that growth would be to end all take-away outlets, and insist that all waste food was put into secure containers. The city has begun an attempt to control breeding by putting ceramic eggs in nests, but the cost is high.

A few pairs of Mallard can always be found, and seem to find enough to eat. Moorhen have been seen, which is surprising for a species normally only associated with fresh water. Herons can be seen fairly regularly, and presumably find some fish and Cormorants sometimes are seen on the trees, but whether they can feed in the usually opaque waters of the Cut is uncertain. Kingfisher are also occasionally seen in winter. A pair or two of Grey Wagtails breed, using niches in masonry as nest sites.

About twelve other species use the shrubs and trees on the south side for nesting. Wren, Dunnock and Robin are frequent, as are Blackbird; Greenfinch, Chaffinch and probably Goldfinch all nest, as do Magpie. Feral Pigeon nest under the bridges, Wood Pigeon Collared Dove and Carrion Crows in the trees. Both Chiffchaff and Blackcap have been heard, and may well breed. Jackdaw nest in the chimneys of neighbouring houses, and House Martins have set up at Pooles Wharf. Kestrels nest on the Create Centre. Other species occasionally seen include Goldcrest and Jay. House Sparrows, and Starlings, once abundant, are now very scarce. The cause of their abrupt decline is uncertain, but they face increasing competition for available food from the ever-increasing gull population.

City centres are not often associated with abundant wildlife, and Bristol is exceptionally fortunate to have retained so much for so long. Wildlife is always under threat from those who believe they can find a “better” use for any green space, and who arrogantly regard land not used for human profit as “waste”. The New Cut may be an artificial creation to meet needs that in part have vanished, but it has become a vital resource for both those who live around it, and all Bristol citizens. It needs friends to make sure that it is left alone, and luckily it has them. The information upon which this article is based comes partly from personal observation, and partly from the work of the Friends of the Avon New Cut (FrANC) and further information about their work can be found at www.southvillecentre.org.uk

Appendix. Species lists.

Table 1
New Cut: List of Trees (T) and Shrubs (S). P indicates Planted.
The column headed N indicates the north side of the cut, S the south side.

Species		N	S			Species		N	S	
Almond	T	x	x			Rowan	T	x	x	
Apple	T	x	x			Sallow	T	x		
Ash	T	x	x			Silver Birch	T	x	x	P
BhutanPine	T		x	P		Swedish Whitebeam	T		x	
Black Pine	T	x		P		Sweet Gum	T	x		P
Cherry	T	x	x			Sycamore	T	x	x	
Cherry plum	T		x			Tulip Tree	T		x	P
Common Alder	T	x				Weeping Willow	T	x		P
Common Lime	T	x	x	P		White Mulberry	T		x	P
Common Oak	T	x	x			White Poplar	T	x		P
Domestic Plum	T	x	x			Whitebeam	T		x	
English Elm	T		x			Elder	S	x	x	
Field Maple	T	x				Firethorn	S	x		
Fig	T		x			Garden Privet	S		x	P
Grey Alder	T	x		P		Hawthorn	S	x	x	
Grey Poplar	T	x		P		Hazel	S		x	
Horse Chestnut	T	x	x			Japanese Spindle	S	x	x	P
London Plane	T	x	x	P		Lonicera Fragrantissima	S		x	P
Norway Maple	T	x	x	P		Red Currant	S	x		
Pissards Plum	T		x	P		Snowberry	S		x	
Prunus sp	T	x	x	P		Wild Privet	S	x		

Table 2
Plants of the New Cut. S indicates a Saltmarsh plant, G a garden plant. The last column gives the percentage frequency of the species by one-km square in the Avon region, an indication of its rarity.

Species	N	S	%		Species	N	S	%
Alexanders	x	x	5		Hop Trefoil	x		20
Alkanet	x	x	12		Ivy	x	x	96
Annual Mercury	x		34		Ivy broomrape	x	x	4
Beaked Hawksbeard	x		46		Ivy-leaved Toadflax	x	x	53
Biting Stonecrop	x		29		Japanese Knotweed			19
Bittersweet	x		81		large Bindweed		x	22
Black Medick	x		78		Lesser Hop Trefoil	x		52
Black Mustard	x		13		Lesser Meadow Rue		x	2
Blackberry	x	x	95		Male Fern		x	63
Bluebell	x	x	69		Meadow buttercup	x	x	84
Bristly Oxtongue		x	32		Meadow Vetchling		x	76
Briza maxima (G)		x	0		Mexican Daisy	x		1
Broad-leaf Pea	x		4		Michaelmas Daisy	x		na
Broad-leaved Willowherb	x	x	42		Monkshood (G)		x	na
Buddleia	x	x	28		Montbretia (G)	x	x	2
Burdock	x	x	49		Mugwort	x	x	46
Canadian Fleabane	x	x	9		Nettle	x	x	97
Canadian Golden Rod	x	x	6		Nipplewort	x	x	78
Carrot	x		43		Old Mans beard	x	x	65
Catsear	x		62		Opium Poppy		x	9
Celandine	x	x	80		Oxeye Daisy	x	x	70
Chicory	x		4		Oxford Ragwort	x	x	27
Cleavers	x	x	96		Pellitory	x	x	13
Clustered Dock (S)	x	x	35		Pendulous Sedge	x		29
Common Mallow	x	x	48		Perforate St Johns Wort	x	x	41
Common Poppy		x	37		Periwinkle (G)	x	x	na
Common Vetch	x		64		Pink Oxalis (G)		x	2
Cord Grass (S)	x	x	2		Prickly Lettuce	x	x	22
Corn Salad		x	5		Prickly Sowthistle			77
Cotoneaster	x		na		Primrose		x	54
Cow Parsley	x	x	94		Purple Toadflax	x		14
Cowslip	x		45		Ragwort	x	x	78
Creeping Buttercup		x	96		Ramsons		x	37
Creeping Cinquefoil	x		87		Rape	x		9
Creeping Thistle	x		96		Red Bartsia	x		19
Crow Garlic	x	x	50		Red Valerian	x	x	24
Cut-leaf Cranesbill	x		80		Ribwort Plantain	x	x	94
Daffodil	x	x	na		Rose Bay Willowherb	x		60
Daisy	x		92		Rose of Sharon (G)	x		2
Dandelion	x	x	100		Rosy garlic		x	0

Dog Rose	x	x	50		Rough Chervil		x	42
Doves-foot Cranesbill	x	x	52		Round-leaved Cranesbill	x	x	18
Dusky Cranesbill (G)		x	na		Russian Vine (G)	x		19
English Scurvy Grass (S)	x	x	5		Scarlet pimpernel	x		37
Evening Primrose	x		5		Sea Aster (S)	x	x	6
Feverfew	x	x	17		Sea Couch Grass (S)	x	x	2
Field bindweed	x		78		Sea Plantain (S)	x		2
Field Madder	x		16		Self Heal	x		73
Fleabane	x		30		Shasta Daisy (G)	x		na
Fly Honeysuckle	x		na		Shepherds Purse	x	x	81
Fools Parsley	x		26		Smooth Hawksbeard	x		50
Forget me not		x	58		Smooth Sow Thistle	x	x	74
Garlic Mustard	x	x	84		Snapdragon	x		9
Giant Hogweed		x	2		Spear Thistle	x	x	94
Goatsbeard	x		44		Spear-leaved Orache (S)	x	x	29
Gorse		x	18		Tansy	x		12
Grape Hyacinth	x	x	1		Teazel	x		58
Great Hairy Willowherb	x	x	84		Trailing Bellflower		x	1
Greater Sea Spurrey (S)	x		2		Tutsan	x		4
Groundsel	x	x	81		Vervain	x		16
Gt Mullein	x		22		Wall Lettuce	x	x	15
Hawkweed	x		na		Wall Rocket	x		7
Hedge Mustard	x	x	69		Wall Speedwell	x		27
Hedge Woundwort		x	89		White Clover	x		93
Hemlock Water-dropwort	x	x	44		White Deadnettle		x	78
Hemp Agrimony	x	x	39		White Stonecrop	x		10
Herb Robert	x	x	89		Wild Celery (S)	x	x	5
Hoary Willowherb	x		42		Wintercress	x		27
Hogweed	x	x	95		Wood Avens	x		74
Honesty	x		11		Yarrow	x		91
Hop	x	x	23		Yellow Fumitory		x	13

Table 3. Butterflies found at Butterfly Junction, 2003-2006

Brimstone	Orange Tip
Clouded Yellow	Painted Lady
Comma	Peacock
Common Blue	Red Admiral
Gatekeeper	Ringlet
Green-veined White	Small Copper
Large Skipper	Small Skipper
Large White	Small Tortoiseshell
Marbled White	Small White
Meadow Brown	Speckled Wood

Table 4. Birds observed on the Cut 2005-2006

Blackbird	House Sparrow
Black-headed Gull	Jackdaw
Blue Tit	Jay
Chaffinch	Kestrel
Chiffchaff	Kingfisher
Collared Dove	Lesser Black-backed Gull
Cormorant	Long-tailed Tit
Crow	Magpie
Dunnock	Mallard
Feral Pigeon	Mediterranean Gull
Goldcrest	Moorhen
Goldfinch	Redshank
Great Black-backed Gull	Robin
Greenfinch	Sand Martin
Grey Wagtail	Common Sandpiper
Heron	Wood Pigeon
Herring Gull	Wren
House Martin	