Parish Plans Biodiversity Project

High Bickington

Report by the

Devon Biodiversity Records Centre

in partnership with

Devon County Council

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Devon Biodiversity Records Centre

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Devon County Council

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Introduction

There are some surprising aspects of Biodiversity interest within High Bickington but many of these have some connection with the agricultural land use which dominates the Parish. However, with new agri-environment schemes helping to modify some of the more intensive agricultural practices, there may be more opportunities than ever to help keep what species are present and to favour both these and others in the longer term.

At the same time, community-lead initiatives can help to recreate or restore woodland, wetland and wildflower meadows near the areas where most people live and so provide an important new wildlife resource which would also function as useful amenity areas.

For many species of , for example, bats and birds it would only need most people to remove some of the damaging factors and include a few of the favouring actions for the species' populations to be secured. Having the desire to understand what these detrimental factors are and what positive action can be taken is the first step to 'maintaining and enhancing' the Biodiversity of the Parish.

Sites and Habitats

Wildlife Sites within the Parish of High Bickington

File Code	Site Name	Grid Ref.	Area (ha)	Description	Status
	Knowle/Timber/ Lee Woods	SS580213	22.4	Semi-natural ancient woodland	AWI
	Snape Wood	SS619197	55.6	Semi-natural ancient woodland	AWI
SS62/136	Middle Wood Farm	SS613208	0.5	Culm grassland	CWS

County Wildlife Sites (CWS): these are sites of county importance for wildlife, designated on the basis of the habitat or the known presence of particular species. This is not a statutory designation like SSSIs, and does not have any legal status. County Wildlife Sites are usually included in Local Plans as sites of substantive nature conservation interest and are covered by Planning Policy Guidance note nine (PPG9). CWS recognition does not demand any particular actions on the part of the Landowner and does not give the public rights of access. However, it may increase eligibility for land management grants.

Culm Grassland: This is the local name given to species-rich marshy habitats found on the Culm measures of north-western and central Devon and north-east Cornwall, also known as Rhôs Pasture, and referred to in the UK Biodiversity Action Plan as Purple Moor Grass and Rush Pastures (*Molinia-Juncus*). Culm Grassland is a variable habitat whose main plant communities are classified by the National Vegetation Classification (NVC) as follows:

Ancient Woodland Inventory (AWI): Ancient Woodland is a term applied to woodlands which have existed from at least Medieval times to the present day without ever having been cleared for uses other than wood or timber production. A convenient date used to separate ancient and secondary woodland is about the year 1600. In special circumstances semi-natural woods of post-1600 but pre-1900 origin are also included. The Devon Ancient Woodland Inventory was prepared in 1986 by the Nature Conservancy Council.

Snape Wood and Knowle/Timber/Lee Woods - Ancient Woodlands

Snape Wood and Knowle/Timber/Lee Woods are listed in the Devon Ancient Woodland Inventory, which was prepared in 1986 by the Nature Conservancy Council.

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The northern part of Knowle/Timber/Lee Woods known as Knowle Woods was surveyed in 1994 as part of the North Devon Wildlife Sites Survey and identified as a County Wildlife Site on account of the ancient woodland. The southern part of the wood is not a County Wildlife Site as it is in Torridge District where there has not been a district wildlife survey. However, this wood (Upcott Wood) has recently been established as a Woodland Trust nature reserve.

Middle Wood Farm Culm grassland County Wildlife Site

Middle Wood Farm is a small area of Culm grassland situated to the east of High Bickington village and is under private ownership. The western part of the site has been planted with trees under the Woodland Grant Scheme. The site supports typical Culm grassland species such as sneezewort, angelica, marsh pennywort, lesser spearwort and sharp-flowered rush.

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M16 *Erica tetralix-Sphagnum compactum* wet heath
M23 *Juncus effusus/acutiflorus-Galium palustre* rush pasture
M24 *Molinia caerulea-Cirsium dissectum* fen meadow
M25 *Molinia caerulea-Potentilla erecta* mire
M27 *Filipendula ulmaria-Angelica sylvestris* mire

Culm grassland is listed on the **Devon Biodiversity Action Plan** as a priority habitat and on the **National Biodiversity Action Plan**. Culm grassland is characterised by purple moor-grass, as well as sharp-flowered rush, and various flowering species such as devil's-bit scabious, meadow thistle, heath spotted orchid, water mint and round-leaved sundew. Culm grassland may support the rare marsh fritillary butterfly and narrow-bordered bee hawkmoth, as well as the barn owl and curlew.

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Notable Species within the parish of High Bickington

No.	Name	Latin Name	Location	Date	UK Protection	International Protection	Status
1	Lesser Horseshoe Bat	Rhinolophus hipposideros	North Heale Farm, near High Bickington.	2002	WCA 5, 6	EC IIa, IVa; Bern II; Bonn II	UKBAP(P)
2	Japanese Knotweed	Fallopia japonica	Passmore Lodge, Ebberly, Great Torrington.	2003	WCA 9		
3	French hales	Sorbus devoniensis	Yarnscombe, Quarry N of Road	1990			DBAP; NS; DN1
4	Brown Hare	Lepus europaeus	High Bickington	1996			UKBAP(P); DBAP
5	Brown Hare	Lepus europaeus	High Bickington	1996			UKBAP(P); DBAP
6	Primrose	Primula vulgaris	Knowle Wood	1994			DBAP
7	Smooth Brome	Bromus racemosus	Knowle Wood	1994			DN2
8	Otter	Lutra lutra	Near Millbrook (to the Langham Brook) at High Bickington, Umberleigh.	2002	WCA 5	EC IIa, IIIa; Bern II	UKBAP(P); DBAP
9	Brown Hare	Lepus europaeus	High Bickington	1996			UKBAP(P); DBAP
10	Brown Hare	Lepus europaeus	High Bickington	1995			UKBAP(P); DBAP
11	Brown Hare	Lepus europaeus	High Bickington	1997			UKBAP(P); DBAP
12	Slow-worm	Anguis fragilis	In wildlife refuge at	2001	WCA	Bern III	

			Stowford Down, High Bickington, Umberleigh.		5(KIS)		
13	Badger	Meles meles	A377 200m south of Smallmarsh Farm	1999	WCA 6, BA	Bern III	
14	Primrose	Primula vulgaris	Middle Wood Farm	1988			DBAP
15	Badger	Meles meles	A377 at edge of main road, .75 mile west of Weirmarsh Farm	1999	WCA 6, BA	Bern III	
16	Freshwater Pearl Mussel	Margaritifera margaritifera	River Taw, Weirmarsh Farm	1999	WCA 5	EC IIa, Va; Bern III;	UKBAP(P); DBAP; Nb
17	Bluebell	Hyacinthoides non-scripta	Upcott Wood	1994	WCA 8 (S)		
18	Primrose	Primula vulgaris	Upcott Wood	1994			DBAP
19	Hedgehog	Erinaceus europaeus	Weirmarsh Farm, Umberleigh	2000	WCA 6	Bern III	
20	Otter	Lutra lutra	R Taw	1980-1982	WCA 5	EC IIa, IIIa; Bern II	UKBAP(P); DBAP
21	Badger	Meles meles	On A377 0.2 miles the Barnstaple side of Kingford Hill turning.	2001	WCA 6, BA	Bern III	
22	Badger	Meles meles	A377 due east of Bickington village	1999	WCA 6, BA	Bern III	
23	Otter	Lutra lutra	Kingford	1997	WCA 5	EC IIa, IIIa; Bern II	UKBAP(P); DBAP
24	Freshwater Pearl Mussel	Margaritifera margaritifera	River Taw, downstream of Scoope Bridge	1999	WCA 5	EC IIa, Va; Bern III;	UKBAP(P); DBAP; Nb
25	French hales	Sorbus devoniensis	Nr. Umberleigh.	1990			DBAP; NS; DN1

WCA 5	**Wildlife and Countryside Act (1981) Schedule 5:** species protected against killing, injury, disturbance and handling.
WCA 5 (KIS)	**Wildlife and Countryside Act (1981) Schedule 5: (killing & injury):** species protected against killing, injury and sale only.
WCA 6	**Wildlife and Countryside Act (1981) Schedule 6:** animals (other than birds) which may not be killed or taken by certain methods
WCA 8 (S)	**Wildlife and Countryside Act (1981) Schedule 8: (sale):** plants protected against sale only.
WCA 9	**Wildlife and Countryside Act (1981) Schedule 9:** animals and plants for which release into the wild is prohibited.
BA	**Protection of Badgers Act 1992:** badgers may not be deliberately killed, persecuted or trapped except under licence. Badger setts may not be damaged, destroyed or obstructed.
Bern II	**Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix II:** Special protection for listed animal species and their habitats.
Bern III	**Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) Appendix III:** Exploitation of listed animal species to be subject to regulation
ECIIa, IIb	**EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats & Species Directive) Annex IIa and IIb:** Designation of protected areas for animal and plant species listed.
ECIIIa, IIIb	**EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats & Species Directive) Annex IIIa and IIb:** Species used as criteria for designating Special Areas of Conservation (SACs).
ECIVa, IVb	**EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats & Species Directive) Annex IVa:** Exploitation of listed animals and plants to be subject to management if necessary.
ECVa, Vb	**EC Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats & Species Directive) Annex Va and Vb:** Exploitation of listed animals and plants to be subject to management if necessary.
Bonn II	**Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) Appendix II:** Range states encouraged to conclude international agreements to benefit species listed.

UKBAP(P) **UK Priority Species (Short and Middle Lists - UK Biodiversity steering Group Report 1995)** i.e. species that are globally threatened and rapidly declining in the UK (by more than 50% in the last 25 years). Has a Species Action Plan.

DBAP **Devon Biodiversity Action Plan species:** these have been identified as species of key conservation concern in Devon.

NS **Nationally Scarce:** 15-100 10km squares in Atlas of British Flora 1962.

Devon Notable Species: Selected species recorded from over 50 2km squares in the Atlas of Devon Flora 1984 (R.B. Ivimey-Cook, Department of Biological Sciences, The University of Exeter).

DN1 **Devon Notable[1]:** 1-25 2 km squares in Atlas of Devon Flora 1984.

DN2 **Devon Notable[2]:** 26-50 2 km squares in Atlas of Devon Flora 1984.

Nb **Nationally Notable B:** known from 100 or fewer 10km squares.

Taken from the Invertebrate Site Register.

Brown Hare

The Brown Hare (*Lepus europaeus*) is treated as indigenous but it was probably introduced at some time in the late Bronze Age. It is thought to have displaced the native mountain hare (*Lepus timidus*) and it appears to be declining. This is believed to be due to the intensification of agriculture although paradoxically they have stronger populations in the more intensive arable areas in the east of the country. However, areas of set-aside are benefiting them by presenting areas which are left relatively undisturbed by farming operations and provide a refuge.

The swing to silage cropping will have been a particular disadvantage in the more pastoral west of the country as leverets will sit tight rather than run on the approach of agricultural machinery with obvious consequences. The nocturnal hare needs cover during the day probably both for shade and to prevent predation. So 'hare densities are highest in pastures with the least number of stock'(Devon BAP, 1998).

There appears to be competition with rabbits as hares did well at the times when rabbits were suppressed such as after the introduction of myxomatosis. Hares seem to do better in more traditional mixed farming systems where there is likely to be a more continuous supply of growing plant material. There is evidence (from a Cambridgeshire pilot study) that arable options in the Countryside Stewardship Scheme have favoured them and it is hoped that the proposed new agri-environment schemes, to run from 2005, will contain options that will also help them (GCT, 2004).

The Brown Hare is a Devon BAP species and some of the management prescriptions suggested in the Devon BAP are:

- For hares, small fields are better than large but in large cereal fields divide the field using 'beetle banks' or mown grass strips to provide local feeding when crops are too tall to be grazed by hares.
- Retain hedgerow networks to provide shelter and shade for hares and manage them in conjunction with adjacent field margin habitats.
- Have stock only in certain fields on the farm at any one time.
- Leave areas where the grass can grow tall, but avoid succession to scrub by cutting or grazing every few years.
- Set-aside can provide essential grassy strips in areas where no short grassland exists. Plant non-rotational set-aside in small strips around the farm with mixtures that provide suitable green forage for hares in summer and autumn.
- On rotational set-aside, plough as late as possible to provide early summer grazing for hares.

- Consider reintroducing hay, rather than silage as a hay crop will enable hares to breed successfully.

- Reduce herbicide use on cereal fields to allow weedy stubbles, either across the whole field or in Conservation Headlands around its margins. (However, the latter can make them more susceptible to predation.)

- Under-sow some spring cereal crops with grass seed to provide a following ley so the green stubble is a food source in winter for hares.

- Consider the re-introduction of spring sowing of cereals to leave a weedy winter stubble.

- Where rabbit and fox populations are high, consider the need for their control to reduce competition and predation respectively.

Otter

The Otter too is a Devon BAP species but this one is doing well with evidence from a number of separate sources suggests that the otter's distribution and by implication its population have increased in the last few years:

- a sequence of four National Otter Surveys, seven years apart has showed an increase in positive sites in the south-west region as follows:

National Survey years	1977-79	1984-86	1991-9	2000-02
% positive for otters	23.45%	43.04%	66.75%	82.99%

- DWT's Operation Otter monitoring project, running since 1997, where volunteers check their local stretch of river or stream four times a year are finding more sites positive.

- The distribution and increase of otter road mortality. Sadly this shows an increase too and there were 9 otters found dead on Devon roads in the first six months of 2004.

What you can do to help safeguard this now internationally important otter population:

- Protect or reinstate the riparian strip and extend semi-natural habitat across valley floors and flood plains.

- If you are a farmer, riparian owner or angler, look at the published information on otter requirements.

- Contact DWT if you want to help with the 'Operation Otter' monitoring.

- Let the Devon Biodiversity Records Centre know about otter sightings or signs.

Bats

The Devon Bat Group reports that to the west of the Parish, three species have been recorded: Lesser Horseshoe Bat, Brown Long-eared Bat and Pipistrelle species. (There are now thought to be three different species of Pipistrelle present in the county but at the time the records were made, these were not being separated out as the differences between them had not been clearly defined.)

To the east of the Parish, these same three have also been noted as well as Whiskered/Brandt's Bats and Serotines. Given the Bat Group's understanding of the distribution of the species in the county, they would also expect that at least Daubenton's Bat, Natterer's and Noctules would be present.

This would be a respectable list of species for many counties let alone parishes so it is clear that the bats are an important element in the wildlife presence in the Parish. Whilst some species are likely to be feeding on insects that derive from the grassland of the pasture areas, most will be favoured by the good network of hedgerows which, given their species richness will be hosting a wider variety of insect species than say a simple hawthorn hedge. Also the hedgerows are both sides of the often sunken roads and this will produce a more sheltered microclimate, out of the wind, for insects which will in turn help the bats in their foraging. Another advantage of such an intact hedgerow system across the Parish is that the bats are able to access the different areas in relative safety as they can have an advantage travelling out of sight of predators like the sparrowhawk as they migrate from roosts to their feeding areas.

Some bats things to remember:

- Bats will not get caught in your hair, they have excellent awareness of their surroundings at night using their ultrasonic echolocation.

- Bats prefer roosts that are dry and quiet and are quite at home in modern houses.

- In the winter they prefer cooler parts of buildings, caves or hollow trees.

- In Britain it is illegal to disturb bats or the places where they roost.

- Of the 16 species left in Britain, 6 are *Endangered or Rare* and 6 others are *Vulnerable.*

To favour them,

- Try growing night-scented flowers to attract moths and other night-flying insects.
- Plant herbs and 'cottage garden' annuals attractive to insects.
- Consider leaving part of your lawn unmown from about mid-May to encourage insect larvae which feed on grass.
- Sow wild flower seed collections in your borders.
- Plant up gaps in hedges
- Plant native rather than foreign trees as more insects will be supported by them.
- Add a pond or perhaps a marshy area (for the safety of small children).
- If installing bat boxes, make sure they are not made of treated wood. (BCT, 2004)

River Habitat

Freshwater Pearl Mussel *Margeritifera margeritifera*

Freshwater pearl mussels have a life span of up to 100 years in Britain and live two thirds buried in clean coarse sand or gravels between larger stones or boulders in a fast-flowing and unpolluted river. The larger stones help to provide a more stable environment. This rare, globally-threatened species is a filter feeder, extracting fine organic particles from the water and filtering 50 litres or so of water a day. It is thought that this might have had a significant role in improving water quality when they were in abundance (Devon BAP, 1998). Also, when in abundance, the mussel beds may provide a microhabitat for invertebrates on which juvenile salmon feed (Skinner ,Young and Hastie, 2003). 'For some reason caddis flies, mayfly nymphs and other insects hang around them, providing food for the fish' (Cosgrove P in ECES, 2003). This suggests that there may even have been a mutual benefit to both mussel and fish species. So the reduction in salmon and brown/sea trout is likely to have adversely affected the mussels and the reduction in the mussels may have also have affected its two associated fish species.

With the freshwater pearl mussel, sexual maturity is reached at 10-15 years old when the length exceeds 65mm. In early summer (June/July) the males shed sperm into the water and is inhaled by females whose fertilised eggs develop in a pouch on the gills for several weeks and are then released (July - September) as tiny larvae, known as glochidia. These resemble tiny mussels but their shells are held apart until they encounter a suitable host, when they snap shut onto the host's gill filaments. These glochidia become encysted on the gills of juvenile fish and grow parasitically three until the following spring when they drop off in May and early June, needing to land in sandy or gravelly substrates to settle and start to grow. (Skinner ,Young and Hastie, 2003)

Sadly, there has been a dramatic decline in the freshwater pearl mussel populations in England and Wales although a 1999 survey for the Environment Agency found some individuals on 30 kilometres of the River Taw. However these were mostly scattered isolated individuals or small groups. The conclusion of that report (Killeen,1999) was that 'whilst pearl fishing is likely to have been a major factor in the decline, as a result of bank and river bed manipulation in this area, very little suitable mussel habitat remains'. Almost all of the specimens found had large shells (80-100mm) with the inference that individuals of this size would be at least 40 years old and possibly more. Sadly the report's findings were that the then present low numbers and lack of recruitment (no juvenile or small mussels found) show that the population is in terminal decline (Killeen,1999).

However, whilst mussels in large populations tend to be dioecius, in low density conditions they can become self fertile hermaphrodites and so a small population could remain viable. In the absence of recruitment, these potentially long-lived mussels will only survive through the remainder of the current individuals' lifespans (Oliver & Killeen, 1996).

‘Glochidial mortality depends on the availability of suitable fish host’ such as brown or sea trout and salmon. Clearly ‘low fish numbers will reduce success at the parasitic stage’. ‘In the post-parasitic stage the water and substrate conditions are paramount’ and it is believed that nutrient enhancement is the prime cause of enhance mortality because it increases primary production and hence siltation in the spaces between the gravel stones (Oliver & Killeen, 1996).

This nutrient enhancement is mostly likely to come from recent agricultural practices such as more efficient field drainage and the increased use of fertilisers. Cattle drinks and poached banks also contribute to the siltation problem (Skinner ,Young and Hastie, 2003). There is also a background concern that other more toxic pollution may have been an issue as freshwater mussels tend to bio-accumulate particularly heavy metals. It is not known whether this has been a factor in the decline of these mussels on the River Taw.

The Devon Biodiversity Action Plan is in the process of review and will shortly be setting new targets for the conservation of this species in the County.

Fish

The Environment Agency has recorded from juvenile salmonid and other fish surveys, salmon, sea trout, brown trout, stone loach, bullhead, minnow and eel on the stretch that would include the parish boundary section of the river.

Salmon (*Salmo salar)*

This migratory species starts as a juvenile in fresh water, migrating to feeding grounds as far away as Greenland where it grows to adulthood, returning to coastal waters in spring and summer before moving upstream into the rivers to spawn later in the year. 'The young hatch as *alevins*, but once their yolk-sac is absorbed they become *fry*, developing into *parr* at the end of their first summer. After two years in the river, parr become *smolts*, when they turn silvery and migrate downstream to the sea'. After one to five years they return as adults to the same river in which they hatched, travelling far upstream to spawn in gravel beds, laying down their eggs in nests known as *redds*. After spawning, most die, but some return to the sea as *kelts*, returning to breed again in later years'. (Devon BAP, 1998)

Salmon are an indicator of high river water quality and require uncompacted gravels in which to lay their eggs. If fine sediment accumulates on the gravel after the eggs are laid, water cannot circulate around the gravel and so the eggs do not get enough oxygen to survive. The spawning salmon can be burying their eggs to depths of 15-30 cms of gravel so the substrate has to be clean to this depth. (Devon BAP, 1998) Conversely once the gravels are silted, there is more chance that aquatic and macrophytic plant growth will occur, dominating the river bed.

Much has been written about the problems of the salmon in many rivers and over many years. Whilst water quality has clearly been an issue, the physical obstructions to migrating fish have always been a problem and weather and water conditions may allow only interrupted access. Drought and over-abstraction have been issues and the over-exploitation of stocks will have become more and more of a problem as the population numbers have decreased. There has been some respite following the partial buyout of nets in the early 1990s and 2002 (11 ex 14 - funded by the Migratory Salmon Foundation) 'in association with a zero Net Limitation Order for ten years' (EA, 2003).

Some of the actions from the Devon BAP for Salmon include:

- Seek to ensure that agri-environment schemes, forestry grant schemes and land management schemes on riparian land take account of the habitat and water quality requirements of salmon (especially by limiting soil erosion, reducing organic and inorganic inputs onto land , and by providing vegetated strips a long rivers).

- Promote the implementation of policies for the treatment of sewage which aim to reduce eutrophication of rivers and thereby provide suitable habitats for salmon.

- Lobby for maintained funding for effective policing of salmon fisheries in order to reduce poaching in estuaries and rivers.

- Take account of the main requirements of salmon in providing advice to landowners, especially to reduce bankside erosion and poaching, soil erosion on fields impacting upon rivers and streams, to provide suitable bankside vegetation cover, and to reduce inputs to watercourses.

- Maintain, and if necessary refine, monitoring programmes of salmon populations in Devon's rivers, estuaries and coastal waters.

- Conduct surveys and mapping of spawning habitat in target rivers, in order to refine Spawning target assessment.

- Foster awareness and understanding of the importance of Devon's rivers, estuaries and coastal waters for salmon, the threats to them and their habitat, and methods for their conservation and enhancement.

The reduction or removal of the nets will give a chance of improvement complemented by an increase in the practice of catch and release by anglers using barbless hooks and a further drive to achieve improved water quality which is probably key to improved survival rates of the young. At the strategic level, the designation of the Taw catchment as a Nitrate Vulnerable Zone is also likely to have helped.

Species-rich Hedgerows

Hedgerows tend to be taken for granted as they always seem to be there, providing such a constant in a familiar landscape. However, they do require regular attention to keep them in good condition. That so many are still in good condition is a testament to the skill and hard work of generations of Farmers. But there are changes even in the oldest hedgelines as they way the majority are managed has altered with less farm labour available and more reliance on mechanical cutting. Even the mechanical cutting has changed as reciprocating cutters that could cut shrub stems cleanly have given way to tractor-mounted flails which can tackle slightly older growth but at the expense of every stem being shattered, leaving them much more susceptible to infection. As individual hedge plants die, they leave gaps which render the hedge less effective and which would in the past have been filled when the hedge was next layed.

With the advent of mechanical hedge-trimming has come another change - that it now becomes possible to trim all the hedges on a farm in one year. It is this that perhaps has the most impact on the vertebrate wildlife as the fruiting and seeding species are very much less productive and there is a different and less varied structure. Shrubs that do produce a good berry crop may be cut in the early autumn before the birds, particularly the migrants, can gain any advantage. A couple of generations ago, many hedges on a farm might have been cut only once in five or even seven years, allowing them to be much more productive in the meantime.

Recognising these changes does allow choices in the way hedges are managed in the future with perhaps only one or two of the three ‘faces’: the top and the two sides being cut in any one year. This wouldn’t stop road or drive side hedges being cut from both the safety and visual aspects but for the majority of hedges it would have two major benefits, it would take less time and hence cost and it would benefit wildlife!

Once it was realised nationally that many thousands of kilometres of hedgerow were being lost annually and that something ought to be done about it, the Hedgerow regulations (made under Section 97 of the Environment Act 1995) were introduced in England and Wales in 1997 to protect them. The Regulations are intended to prevent the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority. The local planning authorities are only able to require the retention of ‘important’ hedgerows. The Regulations then set out criteria to be used by the local authority in determining which hedgerows are important. (Bickmore, 2002)

In such a clearly agricultural landscape, the hedgerows and hedgebanks represent continuity as features in the landscape and provide a significant wildlife resource at a time when the fields themselves are being more intensively used. The UK Biodiversity Action Plan (UK Steering Group, 1995) lists ancient and or species-rich hedgerows as one of its priority habitats.

Various definitions of species-rich hedges have been used in different parts of the country but it would not be unreasonable to treat a hedge that has five or more woody species in a 30 metre length as a ‘species-rich’ one.

High Bickington Hedges

Hedgerows are often an essential corridor for the movement of wildlife such as birds, bats and small mammals and may support many animals and plants in their own right. Species-rich hedges are listed on the Devon Biodiversity Action plan as a habitat of conservation concern in Devon. Most of the hedges checked along the lanes of High Bickington could be classified as species-rich, with an average of six woody species in a 30 metre length, some hedges had as many as eight or nine woody species (hedges M, Q and S on the *'Biodiversity of the High Bickington Area'* map).

As can be seen form the following grid (Table 1), the most common hedgerow species found on a survey (June 2004) were hazel, oak and ash which were present in most hedges with hawthorn and field maple nearly as prevalent. Other interesting species noted included whitebeam sp., spindle, guelder rose and apple.

Whilst most of the hedges require the hazardous narrow lanes to be braved in order to establish what is present, the bridleway of Taylor's Lane above Snape Wood is a pleasant exception. As well as harbouring a wide variety of species (Table 2), the views from East round to South across the Taw Valley are impressive.

Table 1 - High Bickington Hedges

Hedge:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	No
Species:																				
Hazel	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	18
Oak	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔		✔	✔	✔	17
Ash	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	16
Hawthorn	✔	✔	✔		✔			✔	✔		✔	✔	✔			✔	✔	✔	✔	13
Field Maple	✔	✔	✔		✔	✔	✔			✔	✔		✔	✔	✔	✔				12
Blackthorn			✔						✔	✔		✔	✔	✔		✔	✔	✔	✔	10
Holly				✔	✔				✔	✔	✔						✔	✔		7
Beech						✔	✔		✔	✔	✔	✔								6
Elder			✔					✔			✔								✔	4
Sycamore				✔		✔								✔			✔			4
Willow spp														✔	✔				✔	3
Elm					✔														✔	2
Spindle																	✔		✔	2
Whitebeam		✔																		1
Apple													✔							1
Rowan								✔												1
Guelder Rose													✔							1
	5	5	6	5	7	6	5	6	7	7	7	5	8	7	5	5	8	5	9	

Table 2 - Species list for Taylor's Lane Bridleway Hedge

an elm	*Ulmus sp.*
an oak	*Quercus sp.*
Ash	*Fraxinus excelsior*
Black Bryony	*Tamus communis*
Blackthorn	*Prunus spinosa*
Bramble	*Rubus fruticosus agg.*
Broad-leaved Dock	*Rumex obtusifolius*
Broom	*Cytisus scoparius*
Cleavers	*Galium aparine*
Common Bird's-foot-trefoil	*Lotus corniculatus*
Common Knapweed	*Centaurea nigra*
Common Mallow	*Malva sylvestris*
Common Nettle	*Urtica dioica*
Common Ragwort	*Senecio jacobaea*
Common Toadflax	*Linaria vulgaris*
Dog Rose	*Rosa canina agg.*
Dog's Mercury	*Mercurialis perennis*
Elder	*Sambucus nigra*
Enchanter's-nightshade	*Circaea lutetiana*
Foxglove	*Digitalis purpurea*
Gorse	*Ulex europaeus*
Greater Plantain	*Plantago major*
Grey Willow	*Salix cinerea*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellana*
Hedge Woundwort	*Stachys sylvatica*
Herb-robert	*Geranium robertianum*
Hogweed	*Heracleum sphondylium*
Holly	*Ilex aquifolium*
Honeysuckle	*Lonicera periclymenum*
Ivy	*Hedera helix*
Lesser Stitchwort	*Stellaria graminea*
Lords-and-ladies	*Arum maculatum*
Marsh Thistle	*Cirsium palustre*
Meadow Buttercup	*Ranunculus acris*
Navelwort	*Umbilicus rupestris*
Nipplewort	*Lapsana communis*
Pineapple Weed	*Matricaria discoidea*
Red Campion	*Silene dioica*
Red Clover	*Trifolium pratense*
Rough Chervil	*Chaerophyllum temulum*
Smooth Hawk's-beard	*Crepis capillaris*
Spindle	*Euonymus europaeus*
Tufted Vetch	*Vicia cracca*
Tutsan	*Hypericum androsaemum*
White Clover	*Trifolium repens*
Wood Sage	*Teucrium scorodonia*
Yarrow	*Achillea millefolium*

River Corridor Survey

A River Corridor Survey was undertaken on the River Taw by Eclogue Ltd in 1990 for the then National Rivers Authority (since evolved into the Environment Agency). This involved a survey of the river, its banks and the adjacent land, looking at the physical features such as channel form and substrate as well as patterns of flow and bank formations. Also biological features such as tree cover, bankside vegetation, in-channel vegetation and adjacent habitats were noted.

The stretches of the Taw that bound High Bickington Parish are 6 - 8.5 kilometres from the 'main river' limit near Bishop's Tawton downstream.

Otter hovers were noted and Kingfisher and Sand Marten were believed to be nesting in the two metre earth cliffs that keep eroding to leave the vertical face that gives protection to both these species in their chosen nest sites.

The river itself was said to be characterised by a flow pattern of riffles (shallow water over coarse substrate), pools (deep, slowly swirling water) and slacks (slow stretch due to shallow slope). In the shallower water there were several beds of water crowfoot (*Ranunculus* sp.) (Towns, 1990)

Habitat Enhancement Potential

Wetland Areas

It is clear from the field names on the older maps how much wetter many areas of the Parish have been. For example Boggy Meadow in the 1840 Tithe Map excerpt for Little Bickington Farm from the recent High Bickington Landscape Assessment. There are still many areas on the modern maps that reflect the wetness of the ground and its consequent unsuitability for arable agriculture. Vauterhill Moor and Dadland Moor are examples and parts of these areas can only have been drained in living memory. Whilst this has suited the uses to which the land has then been put, it has had the effect of reducing the overall variety of habitats and hence species within the Parish.

Such processes are not directly reversible as many plant and insect species will have been lost to the area (not just from these sites but from the combination of all the areas that have been similarly drained). However, there is merit in allowing areas that could retain more water to do so. This will encourage a different but perhaps more limited wetland flora and support a greater variety of insect species than the present mix of arable and pasture can allow. Now the pressure for more intensive use of the land has lifted somewhat, there must be areas around the parish that it would be easier to leave wet than to invest in further drainage.

Wildflower Meadows

It is possible to recreate on the poorer soils wildflower meadows using seed sourced from similar areas in the region. This would be a particularly good project if carried out near the village as with suitable access, say to fields from Little Bickington Farm, a useful wildlife resource could also serve as an important amenity area where, with so few footpaths and bridleways, there are few alternative walks other than along the lanes.

Woodland Creation

This is the easy option and that is not to dismiss it at all as there are few woods of note in the Parish. It is the easy option because if the right site is chosen, say a field or fields with a good variety of trees in the surrounding hedges, you need do nothing other than stand back and watch it develop, through a weedy stage to scrub, scrub woodland and then to full woodland. This would happen more or less quickly depending on rabbit and deer numbers locally but it would happen. This option would also have the benefit of then containing locally-‘sourced’ native species! It would present an excellent educational tool at every stage as the ecological succession could be monitored (schools and/or other groups) and again it could provide a useful amenity presently lacking in the vicinity of the village.

There are many opportunities on a garden scale or on a field scale to improve the variety of habitats and hence species in the parish and hopefully this report will help in the first stage of taking stock of what is there now.

The Devon Biodiversity Action Plan (BAP).

The Devon Biodiversity Action Plan (BAP) describes the key actions needed to look after 37 of Devon's most important habitats and species. It does not stand alone, but is part of a much wider process aimed at conserving our biodiversity.

The Devon BAP is a direct descendent of a process started at the famous 'Earth Summit' held in Rio de Janeiro in 1992. At this summit, world leaders pledged to halt and reverse the loss of the planet's biodiversity. For its part, the UK government produced a series of Action Plans for a great many threatened habitats and species. These national plans have been joined by a series of regional Action Plans aimed at providing a more local perspective.

The Devon BAP builds on this endeavour, identifying local priorities and providing targets and plans of action for the County.

All of this work has one aim: to encourage practical action on the ground. Its success depends upon us all.

Biodiversity links:

- The Devon BAP can be viewed at www.devon.gov.uk/biodiversity. This site also contains links to other nature conservation issues relevant to Devon, such as information on hedges. If you do not have access to the internet and require paper copies of relevant sections of the Devon BAP please contact Devon County Council's Biodiversity Officer on 01392 382804.

- Details of biodiversity planning in the South West region can be viewed at www.swbiodiversity.org.uk.

- National Action Plans can be viewed at www.ukbap.org.uk. This site also contains useful background information on UK biodiversity action planning.

Links between the wildlife of High Bickington and the Devon BAP:

High Bickington wildlife feature	Brief description of feature	Link with the Devon Biodiversity Action Plan (BAP)
Snape Wood & Knowle / Timber/Lee Woods	Ancient woodland (i.e. woodland which has existed since at least Medieval times)	• Oak Woodland Habitat Action Plan
Middle Wood Farm Culm grassland County Wildlife Site	A site of County importance for its species-rich wet grassland. Known as Culm grassland, this is a characteristic but now rare feature of the north Devon landscape.	• Rhôs Pasture Habitat Action Plan
Species-rich Hedges	Important – often ancient – wildlife habitats that can also form an important network of corridors along which wildlife can move and disperse.	• Species-rich Hedges Habitat Action Plan
Otter		• Otter Species Action Plan
Brown Hare		• Brown hare Species Action Plan
Salmon		• Atlantic Salmon Species Action Plan
Freshwater Pearl Mussel		• Freshwater Pearl Mussel Species Action Plan

View the Devon Biodiversity Action Plan at www.devon.gov.uk/biodiversity

Some Ideas for Local Action…

This section of the report is provided by Devon County Council
(contact: nature@devon.gov.uk).

A major step to knowing what you can do for your local wildlife and geology is to know what you have already got. This report will help you in this, but it is just a start. Ultimately, the protection and enhancement of the local natural environment requires the interest and enthusiasm of the local community.

There follow some initial ideas for local nature conservation action. Many of them will directly help to achieve the objectives of the habitat and species action plans contained in the **Devon Biodiversity Action Plan**.

It is by no means an exhaustive list. As a community, you may have many more ideas for action that you would like to take forward in the coming years.

1 Further survey:

This report is just a beginning. Carrying out further survey within your area will help build a better picture of the wildlife present, and of the opportunities for enhancement. Gaining a better understanding of the resource is usually a key objective of the Devon BAP's habitat and species action plans.

Specific features to survey in High Bickington might include hedges and otter signs. The last two actions would directly contribute to the **Species-rich Hedges Action Plan** and the **Otter Action Plan**.

One example of survey work that might usefully be undertaken would be to produce a hedgerow appraisal for your local area. Comparing the current distribution of hedges against boundary lines shown on old maps will give a clue as to how this important resource has changed over recent years. It may also highlight opportunities for restoring hedges in your area. It might also be possible to assess the condition of hedges and this may, in turn, give some ideas about improving their future management to benefit wildlife.

Survey work could be undertaken as a community group or in liaison with conservation groups active in the area.

Help to build up a picture of the state of Devon's environment by sending your records to the Devon Biodiversity Records Centre where they can be properly collated.

2 Influence the management of Public Open Space:

Creating areas of more species-rich grassland will help to reduce the isolation of the remaining fragments of traditionally managed agricultural land, contributing to the **Flower-rich Meadows and Pastures Action Plan**. Churchyards have often received less intensive management than the surrounding land and can provide good opportunities for wildlife.

3 Build relationships with local landowners:

Encourage the adoption of more wildlife-friendly land management. For example, hedges which are cut only every other year will provide an autumn and winter source of nuts and berries for birds and small mammals (and can save the landowner money in management costs). The improved management of hedgerows is a key objective of the **Species-rich Hedges Action Plan**. If the owner is willing, why not get involved with practical management, such as traditional hedge laying or pond restoration?

4 Adopt a road verge:

Many verges can have a significant value for wildlife because they have escaped the intensive management of the surrounding farmland. Ensuring such verges are managed for their wildlife is a very positive step, again contributing to the **Flower-rich Meadows and Pastures Action Plan**.

There are, of course, obvious health and safety implications to roadside management. It is an action that would need to be undertaken in close liaison with the relevant highways authority (generally, this is the Highways Agency for motorways and trunk roads, and Devon County Council for all other roads).

5 Wildlife gardening:

Green up your garden! Collectively the gardens of High Bickington represent a significant area that could be used to benefit wildlife. Large or small, you can turn your garden (or a part of it!) into a haven for wildlife. A very good source of information on wildlife gardening is the English Nature web site:

www.english-nature.org.uk/Nature_In_The_Garden

English Nature is the Government's adviser on nature conservation. Its web site also contains links to a number of other very useful sources of information.

6 Join local conservation organisations:

One example of a prominent local conservation organisation is the Devon Wildlife Trust. The Woodland Trust is also active in the area. Both of these trusts have a number of Local Groups which, amongst other things, get involved in practical management work.

7 Japanese Knotweed:

Not something to cherish, but it can't be ignored! Unfortunately, there are records of Japanese Knotweed in High Bickington Parish. Introduced into Britain by the Victorians, Japanese Knotweed is a native of Japan, north China, Korea and Taiwan. It flourishes in Britain's mild and fertile environment and has no natural biological enemies here. Consequently, it is very invasive and can overrun large areas, replacing our native flora. It is a serious pest which can be so vigorous as to cause significant damage to buildings and roads. It is also a difficult plant to eradicate.

For these reasons Japanese Knotweed is listed under the Wildlife and Countryside Act 1981 as a plant that is not to be planted or otherwise introduced into the wild. In addition, all parts of the plant are considered as controlled waste under the Waste Regulations.

What can you do?

- Firstly, it is important to build up a picture of where Japanese Knotweed is present. This will give an idea of the scale of the problem and will help to prevent it being accidentally spread during any ditch clearance, highway work and so on. To help develop an understanding of the problem in Devon, records should also be sent to the Devon Biodiversity Records Centre[1]. Ideally, records should include when you first saw it and confirmation of when it was seen most recently; its precise location (notes or a sketch map are helpful, as is a grid reference if you have one); the kind of habitat it is in (e.g. next to running water, on a road verge), and a rough indication of how abundant it is.

- Secondly, be careful not to spread the plant further! This is all too easily done as it can regenerate from even the smallest fragment and is easy to spread unknowingly. It is important not to flail it or to try and dig it up. Often, it is best not to cut Japanese Knotweed at all, but if it is it should be very carefully disposed of on site when dead or removed as Controlled Waste. Any tools used should be properly cleaned.

- Finally, if Japanese Knotweed is on your land, the best way to prevent its spread is to control or eradicate it as soon as possible. Regular cutting can weaken and eventually kill the plant but it is a time-consuming job and proper disposal of the cut material can be a problem. Usually, the most effective method of control is to treat the plant with herbicide. This can take a number of years to be successful but

[1] DBRC, Shirehampton House, 35-37 St David's Hill, Exeter, Devon, EX4 4DA. Phone: 01392 273244; Fax: 01392 433221; E-mail: contactus@devonwt.cix.co.uk

if the plant is left untreated it will inevitably spread. A number of issues should be taken into account in deciding which herbicide to use, particularly the presence of water (where special care needs to be taken and the advice of the Environment Agency must be sought).

Fortunately, a great deal of advice (including an Environment Agency Code of Practice) is available on the Devon Knotweed Forum's web pages. You are recommended to view these at:

www.devon.gov.uk/biodiversity/japanese_knotweed.

Useful sources of further information:

- Devon Wildlife Trust: www.devonwildlifetrust.org
- Devon Birdwatching and Preservation Society: Secretary tel: 01837 53360
- English Nature: www.english-nature.org.uk
- Plantlife: www.plantlife.org.uk
- RSPB: www.rspb.org.uk
- The Woodland Trust: www.woodland-trust.org.uk
- The Living Churchyards & Cemeteries Project, Arthur Rank Centre, National Agricultural Society, Stoneleigh Park, Warwickshire, CV8 2LZ Tel: 01203 696969 ext. 364/339.

Possible sources of funding:

A number of potential sources of funding are available for local Biodiversity projects. Each has its own rules, criteria and objectives but the following sites may be worth checking for suitability:

Awards for All: www.awardsforall.org.uk

Countryside Trust Awards: 01242 521382 or www.countrysidetrust.org

Living Spaces: 0845 600 3190 or www.living-spaces.org.uk

Local Heritage Initiative: 01226 719019 or www.lhi.org.uk

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