River Lambourn Special Area of Conservation

Evidence Pack

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Further information

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1. Site Details

From River Lambourn Special Area of Conservation citation:

The River Lambourn is a classic example of a lowland chalk river. It rises in Lynch Wood, north of Lambourn and flows down to a confluence with the River Kennet east of Newbury. The catchment is almost entirely chalk which results in a predominantly gravelly river bed.

A key feature is the ephemeral nature of the upper section which generally flows from February through to the autumn. This is known as a 'winterbourne'. Any flora or fauna occurring in these stretches must be adapted to wide variations in flow, thus winterbourne sections tend to be less species-rich than the lower reaches which hold water all year round.

Species characteristic of these conditions include pond water-crowfoot *Ranunculus peltatus* which is the dominant aquatic plant, as well as fool's-water-cress *Apium nodiflorum* and the moss *Fontinalis antipyretica*.

Further down the river where there are perennial flows, the aquatic plants are typical of shallow, gravel-bedded watercourses. Stream water-crowfoot *Ranunculus penicillatus* ssp. *pseudofluitans*, lesser water-parsnip *Berula erecta* and water-cress *Rorippa nasturtium-aquaticum* are abundant; blunt-fruited water-starwort *Callitriche obtusangula* is also characteristic in the channel. The good water quality, coarse sediments and extensive beds of submerged plants provide excellent habitat for bullhead *Cottus gobio* and brook lamprey *Lampetra planeri*.

2. Reasons for European Designation

The River Lambourn Special Area for Conservation (SAC) is designated for the following features:

- H3260 Water courses of plain to montane levels with *R. fluitantis*
- S1096 Brook lamprey, *Lampetra planeri*
- S1163 Bullhead, *Cottus gobio*

Links to Conservation Advice:

- Conservation Objectives
- Conservation Objectives Supplementary Advice

3. Nutrient Pressure and Water Quality

Nutrient pressure(s) for which the site is unfavourable:

- Phosphorus

In the Conservation Objectives Supplementary Advice for the River Lambourn SAC it states that **'the natural nutrient regime of the river should be protected. Anthropogenic enrichment above natural/background concentrations should be limited to levels at which adverse effects on characteristic biodiversity are unlikely'.**

Water Quality data is reported against the relevant Site of Special Scientific Interest (SSSI) units within the SAC.

The condition of the waterbody and the habitats which support the designated features is in part dependent on the water quality within them. The occurrence of excessive nutrients in the waterbody can impact on the competitive interactions between high plant species and between higher plant species and algae, which can result in a dominance in attached forms of algae and loss of characteristic plant species.

Changes in plant growth and community composition and structure can have implications for the wider food web, and the species present. Increased nutrients and the occurrence of eutrophication can also impact on the dissolved oxygen levels in the waterbody and substrate condition, also impacting on biota within the river (River Lambourn SAC COSA, 2019).

Recent water quality measurements for the River Lambourn within the SAC show phosphorus concentrations to be exceeding the targets for all units. Any nutrients entering the catchment upstream of the locations which are exceeding their nutrient targets, will make their way downstream and have the potential to further add to the current exceedance. The catchment map for the River Lambourn includes the entire catchment.

Table 1 – Site attribute with water quality targets

Unit name	SSSI Unit	Monitoring point ID	WQ Target	WQ Monitoring Data[1]		Compliance with target – Pass/Fail and % reduction needed to achieve the WQ Target
			SRP (ug/l), annual mean	OP reactive as P (ug/l), mean	Timescale	

[1] Water Quality Monitoring data from EA WIMS database. Orthophosphate (OP) is a reasonable approximation to Soluble Reaction Phosphorus (SRP). Following the rivers common standards monitoring guidance the mean of 3 years of data used where available.

Lynch Wood to Maidencourt Farm	1	Lambourn at Maidencourt Farm TH-PKER0339	20	62.3	Dec 2019–Jan 2022	FAIL – Very limited data 68% reduction
Maidencourt farm to Oxford Road	2	Lambourn at gauging station, East Shefford TH-PKER0063	30	34.9	April 2017-March 2020	FAIL 14% reduction needed
		River Lambourn at Easton Lodge TH-PKER0337	30	40.3	Jan 2019–Dec 2021	FAIL 26% reduction needed
		Lambourn at Hunts Green TH-PKER0124	30	41.6	Jan 2019–Dec 2021	FAIL 28% reduction needed
		Lambourn at Bagnor TH-PKER0059	30	34.6	April 2017-March 2020	FAIL 13% reduction needed
Oxford Road to River Kennet	3	Lambourn at A4, Newbury TH-PKER0058	30	39	April 2017-March 2020	FAIL 23% reduction needed

4. Additional Information

Habitat type impacted by nutrients - Riverine

The River Lambourn SAC is legally underpinned by the River Lambourn SSSI.

SSSI interest features include:

- Rivers and Streams

Appendix

Component SSSIs of River Lambourn SAC

Map of component SSSIs of River Lambourn SAC

European protected sites requiring nutrient neutrality strategic solutions

Scale: 1:120,000

Component SSSIs of River Lambourn SAC

- Local Authorities
- SSSI subject to nutrient neutrality strategy
- Nutrient neutrality SSSI catchment
- National Parks

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Bibliography

Natural England. 2019. European Site Conservation Objectives: Supplementary advice on conserving and restoring site features, River Lambourn Special Area of Conservation (SAC) Site Code: UK0030257. Natural England.

List of abbreviations

OP – Orthophosphate

SAC – Special for Area Conservation

SRP – Soluble Reaction Phosphorus

SSSI – Site of Special Scientific Interest

WQ – Water Quality

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