

APPENDIX 7 CASE STUDY DETAILS: WENSLEY

Name:	<u>Wensley Quarry</u>
Site location:	4.5 km west of Leyburn (Richmondshire district)
Elevation:	c 280 – 310 mAOD
Natural area:	Yorkshire Dales

Abiotic characteristics

Tarmac operates a limestone quarry on the northern flank of Wensleydale, above Preston-under-Scar. Wensley Quarry is an active Carboniferous limestone quarry at the edge of the Yorkshire Dales National Park. Wensley limestone quarry comprises the current extraction area plus worked out areas on either side to the east and west. The quarry void has been formed behind the original crags which still form the side of the valley overlooking Wensleydale. Previously worked areas have been restored to produce limestone cliffs and pasture and the restoration scheme is for agricultural afteruse (**Figures WEN1 and 2**).

Geology

The limestone is generally sub-horizontally bedded, and shallow waterbodies and intermittent streams have formed on a bedding plane above the underlying sandstone with relatively low permeability at the base of the former workings. Limestone has been extracted to form ~15 m faces with the quarry floor formed by a sub-horizontal sandstone dipping gently to the northeast.

Hydrology

The sandstone has a relatively low permeability compared with the overlying limestone and both surface water and groundwater seepages are channelled along its bedding surface to the lowest point in the quarry. This has led to the formation of a mesotrophic, base-rich body of standing water of high ecological value. Groundwater seepages and a small stream also provide good habitat along the base of the old quarry face. These features appear to be unplanned as the age of the old parts of the quarry is such that detailed habitat creation schemes were unlikely. However there is good potential to incorporate and encourage the development of these features in any future restoration scheme.

Water Quality

The following water chemistry data have been recorded:

Variable/Location	Date	pH	Electrical conductivity
Quarry pond	26/06/2006	8.6	160
Pool	07/07/2006	7.6	310

Table A7.1: Water chemistry data at Wensley

Historical and landscape context

Wensley Quarry is perched on the ridge between Wensleydale and Swaledale, behind the steep limestone outcrops (Scars) overlooking Redmire and Preston-under-Scar. Prior to quarrying the site would have been agricultural land, perhaps including some semi-natural limestone grassland and secondary woodland. There is unlikely to have been any significant

wetland on the site historically, and 'natural' wetlands are scarce on the Carboniferous limestone in Wensleydale.

Ownership and management arrangements

Wensley Quarry is operated by Tarmac. The disused area is understood to have reverted to the land owner under an agricultural restoration scheme.

Ecological objectives of site restoration and management

Disused parts of Wensley Quarry have been treated as agricultural restoration. Habitat which has developed has done so incidentally.

Biodiversity interest

In one of the worked-out quarry voids, a large pond has formed at the base of the quarry walls on top of the relatively impermeable underlying sandstone bed. At the time of the visit this had very clear, alkaline water with submerged vegetation including stoneworts, linear-leaved pondweeds and the non-native Canadian pondweed (*Elodea canadensis*). The shoreline of the pond was a focal point for Oystercatchers and Ringed Plovers, which were probably breeding nearby on the quarry floor. A pair of Wigeon had bred successfully on the pond; this duck is a scarce and very localized breeding bird in Britain, though it does have a small breeding presence in the Yorkshire Dales National Park.

The other disused void has been partly restored to agriculture by replacing soil over the quarry floor. This is set in a mosaic of limestone cliffs, quarry spoil heaps, scrub, secondary woodland and regenerating limestone grassland. A small stream along the edge of the agricultural restoration appears to be fed by a combination of surface run-off and percolation through the restored pasture substrate. There are small areas of seepage mire along the edges of the stream with a series of shallow pools, a semi-permanent pond and a mosaic of bottle sedge (*Carex rostrata*) swamp and willow scrub. These wetland areas are used by Oystercatcher and Reed Bunting.

The following habitats and species have been identified as priorities for conservation in the UK and local (Richmondshire) Biodiversity Action Plans:

Feature	UKBAP Priority	Richmondshire BAP Priority
Fen	•	•
Standing waters		•
Reed Bunting	•	

Table A7.2: Habitats supported

Wensley Quarry is just outside the Yorkshire Dales National Park, so it is also appropriate to consider conservation priorities identified in the National Park's Biodiversity Action Plan, *Nature in the Dales*. These include 'small base-rich wetlands' and Wigeon.

Potential for wetland restoration

The area restored to agricultural use includes a small-scale but diverse base-rich upland wetland including seepages, pool complexes, a pond, sedge swamp and willow carr. This has developed accidentally and there is little means of ensuring appropriate habitat management as the site is under an agricultural restoration agreement. Under sympathetic

management such as low-intensity sheep grazing, it is likely that the seepage habitats could develop a rich flora analogous to a base-rich small sedge mire (NVC M10). However, there are few wetlands on the Carboniferous limestone in Wensleydale, which could impede natural colonization of rarer species.

The large pond in the west quarry provides an important if unplanned habitat in its own right. It is a markedly alkaline but nutrient-poor water body formed by drainage of ground water through the quarry walls into a hollow in the underlying bedding plane. This could be considered a small mesotrophic lake (a UKBAP Priority Habitat) and it already has distinct wildlife interest including breeding Wigeon (at least in 2006), breeding waders using the shoreline and submerged vegetation including stonewort communities. Little active management is required to maintain this water body as a valuable wildlife habitat but it is important that adjacent parts of the disused quarry are kept free from disturbance during the bird breeding season to protect nesting waders.