

7. SAND AND MUDFLATS

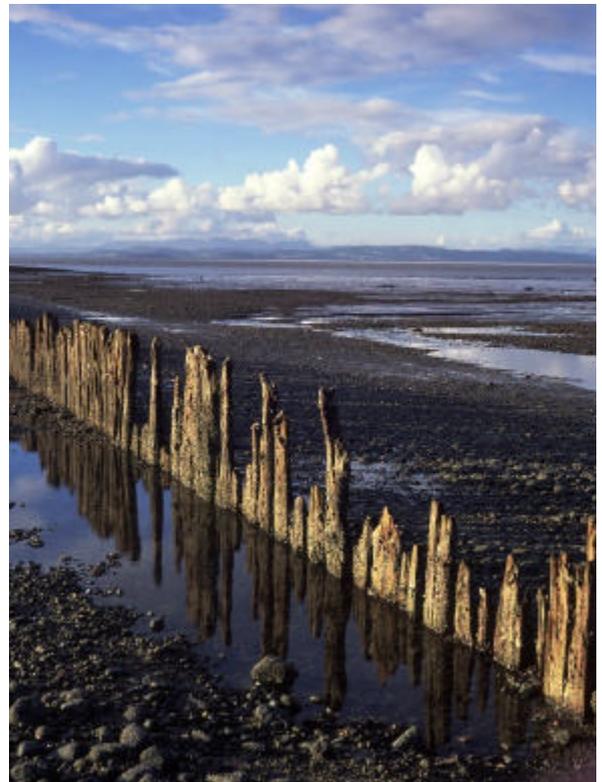
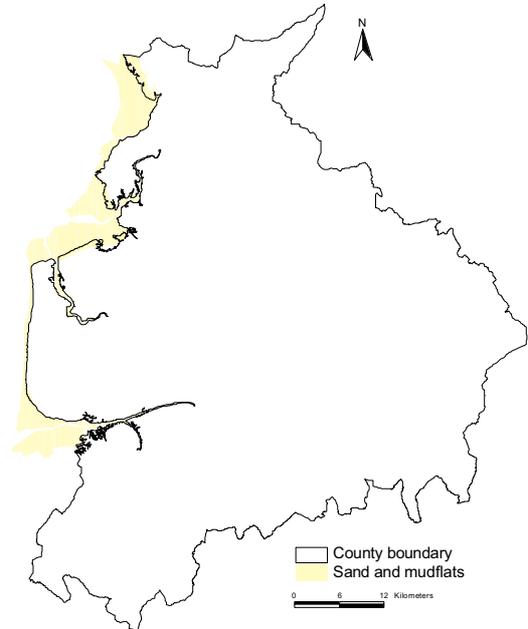
7.1 GENERAL DESCRIPTION

7.1.1 Historical and archaeological background and principal processes: The extensive sand and mudflats around the Lancashire coast are a product of the region's large tidal range, indeed the largest in Britain. The spring tides at Morecambe for instance have an amplitude of more than eight metres.

The area now known as the Irish Sea was present by c.10,000 BP and similarly Morecambe Bay existed in some form by that date (Tooley 1978, 1985). Since then a series of sea level changes, generally rising, have been identified over the millennia up to the present limit. During the last 3,200 years there were three occasions when sea level rose to a higher level than today (2,650, 1,800 and 800 years BP). Human and animal footprints dating from the late Neolithic/Bronze Age have been found in sediments to the south, around Formby, but none are known from Lancashire. The sand and mudflat environment would have provided and allowed access to important resources such as fish, shellfish and perhaps birds and seashore vegetation. It would also have afforded easier transport along the coast compared with a densely wooded or marshland interior. Communication across the type continued until the early 19th century when horse-drawn coaches would regularly traverse the mudflats of Morecambe Bay between Lancaster and the Furness peninsular. Salt production, or sleeching, took place on the flats off Pilling and Silverdale and may have been a significant industry locally.

There would have been close interaction with other coastal HLC types, and more recently with **Settlement**.

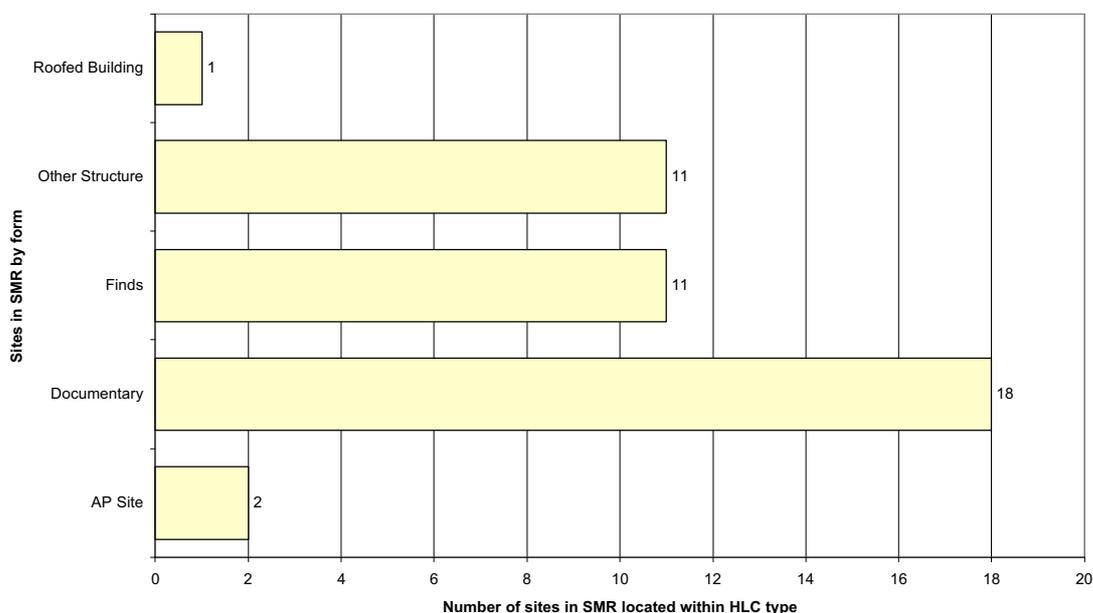
7.1.2 Typical historical and archaeological components: Lines of abandoned brushwood fencing and other structures associated with fishing can be seen (including traps



and platforms), often unrelated to other visible features. The type may also include shipwreck sites, groynes, baulks, tide mills, piers, jetties, beacons, lighthouses, channel walls, stone banks, sewage outfalls, shell middens, artificial oyster and mussel beds, trackways and causeways. Environmental information may be contained within submerged surfaces and forests (such as those off the coast to the north of Fleetwood and by Heysham). In addition the nature of the type is such that occasional finds are made of artefacts washed up from elsewhere. See Section 4.2 for an explanation of the tables set out below.

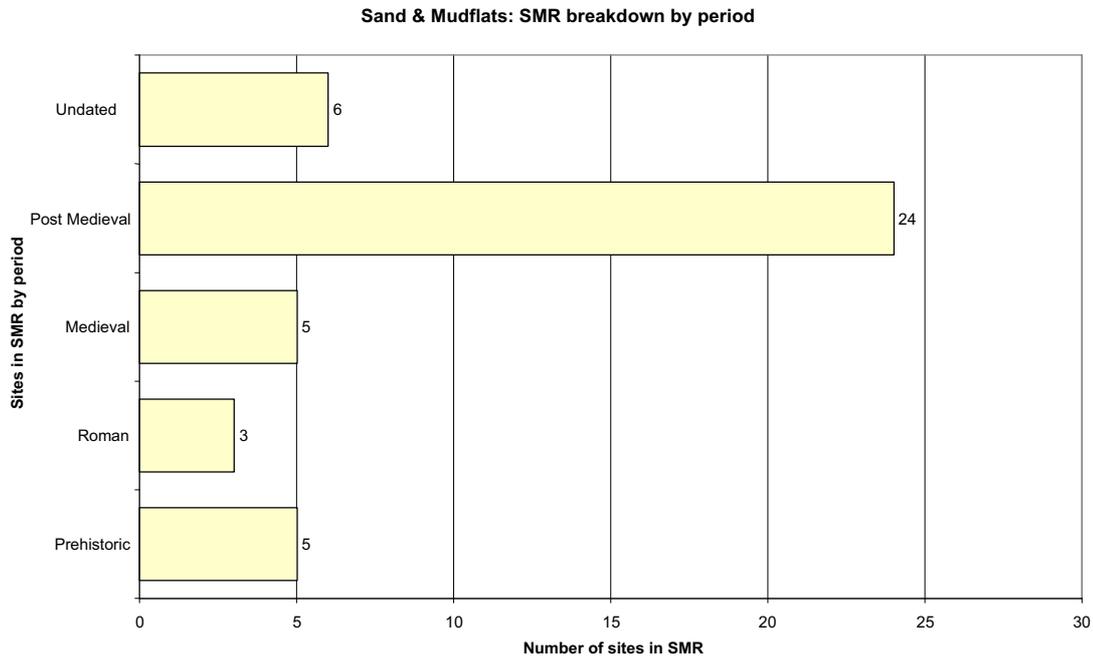
| TYPE1 | Tot. Type1 in county | Tot. Type1 in SM | Ha./site in SM | % of Type1 tot. in SM |
|--------------------|----------------------|------------------|----------------|-----------------------|
| Total SMR sites | 13902 | 43 | 416 | |
| Wreck | 7 | 5 | 3574 | 71% |
| Pier | 6 | 4 | 4468 | 67% |
| Colonnade | 2 | 2 | 8935 | 100% |
| Fish weir | 2 | 2 | 8935 | 100% |
| Lighthouse | 2 | 2 | 8935 | 100% |
| Organic:wood boat | 4 | 2 | 8935 | 50% |
| Sea defences | 5 | 2 | 8935 | 40% |
| Stone:axe | 31 | 2 | 8935 | 6% |
| Stone:axe,polished | 31 | 2 | 8935 | 6% |
| Boundary Stone | 117 | 1 | 17870 | |
| Ceramic:vessel | 8 | 1 | 17870 | 13% |
| Cross | 242 | 1 | 17870 | |
| Ferry | 12 | 1 | 17870 | 8% |
| Grange | 6 | 1 | 17870 | 17% |
| Gun emplacement | 1 | 1 | 17870 | 100% |
| Harbour | 2 | 1 | 17870 | 50% |
| Landmark tower | 3 | 1 | 17870 | 33% |
| Lime Kiln | 194 | 1 | 17870 | |
| Metal:coinhoard | 28 | 1 | 17870 | 4% |
| Metal:iron axe | 4 | 1 | 17870 | 25% |

Sand & Mudflats: SMR breakdown by form



7.1.3 Similar types and distinguishing criteria: There are no similar types. The type was identified on the O.S. 1:25,000 series using the map symbol only. The type was mapped to the county boundary line in Morecambe Bay though it obviously continues across the

bay. Further south the boundary between the sand and mudflats and the sea has been taken as the limit of the project.



7.1.4 **Rarity:** **Sand and Mudflat** accounts for 5% of the Lancashire area.

7.2 ENHANCING AND SAFEGUARDING THE TYPE

- Assess carefully the impact of any sand winning or other measures, such as offshore windfarms and tidal barriers, which would potentially cause disturbance of the deposits. Assessment should take account of impact on the existence of the type itself, but more importantly should assess the impact on the potential archaeology within these deposits.
- *Ensure* that known and potential archaeological components of the type are taken into consideration in the preparation of the 11b (Formby Point to River Wyre) and 11c (River Wyre to Walney Island) Shoreline Management Plans, and are integrated with natural interests.
- *Protect and enhance* known archaeological sites and structures through the Morecambe Bay Strategy (policy HL-5) and the Ribble Estuary Strategy (policy NRH3), and ensure that the potential for new sites is recognised in the implementation of action plans.
- *Conduct* more research into the archaeology of this HLC type and its distribution within the coastal zone. Full assessment of the type may be forthcoming in a proposed *Rapid Coastal Zone Assessment Survey* for the north west.
- There are limited measures that could be taken to protect, enhance or conserve this HLC type as natural forces remain the biggest influence both in its creation and in its destruction.

7.3 KEY SOURCES

Huddart, D., Roberts, G. and Gonzalez, S., 1999, 'Holocene human and animal footprints and their relationships with coastal environmental change, Formby Point, NW England' in *Quaternary International* **55**, 29-41.

Morecambe Bay Partnership, 1996, *Morecambe Bay Strategy*

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Shackley, S., Wood, R., Hornung, M., Hulme, M., Handley, J., Darier, E., and Walsh, M., 1998, *Everybody has an Impact: a report prepared for 'Climate change in the North West' group*

Taylor, P.M., and Parker, J.G. (eds), 1993, *The coast of North Wales and North West England: An Environmental Appraisal*. Commissioned by Hamilton Oil Company Ltd.

Tooley, M.J. 1978, *Sea-level changes in NW England during the Flandrian stage*

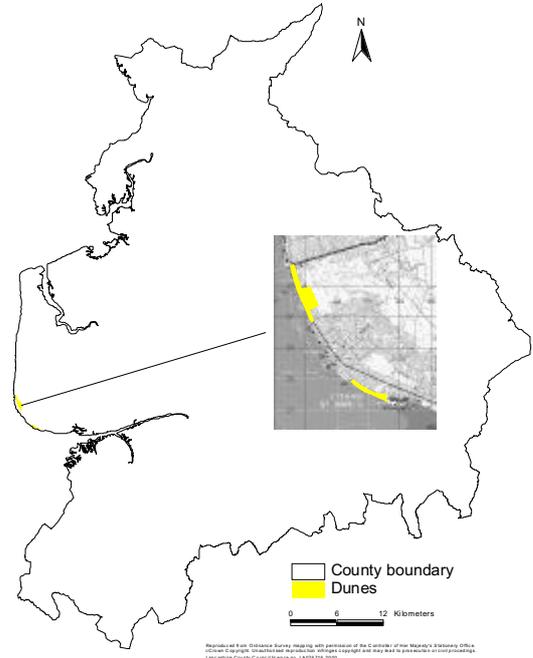
Tooley, M.J. 1985, 'Sea-level changes and coastal morphology in NW England', in R.H. Johnson, *The geomorphology of NW England*. Manchester University Press

Wessex Archaeology, 1999, *Shoreline Management Plans and the Historic Environment*. Report for English Heritage

8. DUNES

8.1 GENERAL DESCRIPTION

8.1.1 Historical and archaeological background and principal processes: The only substantial area of dunes surviving within the county is that at Lytham. Here the former area of dunes was far more extensive, with the system stretching to Bispham only 150 years ago – a distance of over 9km. In addition there were dunes at Fleetwood. Elsewhere, at Sefton, comparable examples were laid down perhaps some 6,000 years ago over tidal flat and lagoonal deposits. Periods of stability led to use of the dunes for pasture, cultivation and settlement, evidence for which became buried by sand in periods of dune instability and increased wind blow. This led to a succession of buried land surfaces in the dunes with valuable evidence preserved of these earlier periods of human activity. By the 19th century marram grass was being planted on a large scale by the local estates to stabilise the dunes which were regarded as important areas for keeping game (rabbits) and for livestock grazing. The dunes at Lytham were called Starr Hills (*starr* being a local name for marram grass) and were used for rabbit warrens, as were those at Fleetwood. Private land ownership and the associated uses to which they were put meant that the dunes were inaccessible for most people, routes through them to the sea being restricted to just a few paths.



Tree planting and the growth of the coastal resorts have reduced the area of dunes. The Lancashire coast became a desirable place to live for those working in neighbouring towns, and a playground for the masses as seaside resorts grew. By the beginning of the 20th century the large estates were losing their control over the dune landscape. Expanding urbanisation affected parts of the dunes along with increased sand blow and recreation.



Until the 20th century the dunes were part of a larger agricultural system, being used primarily for grazing. They were also used as rabbit warrens from at least the late 16th century. During the course of the 20th century the type has become more associated with the urban zone, and its present value is mainly as a recreational resource. Dunes are considered to be wild 'natural' areas, but have been heavily influenced by human use in the

past. Without planting of marram grass they would at least be of different morphology and extent today. However, their integration into the past agricultural economy and their archaeological/historical components are not generally understood.

- 8.1.2 Typical historical and archaeological components: Study of comparable dune landscapes on the Sefton coast indicates that the type may contain evidence of buried land surfaces, artefacts and possibly settlement. In addition, there may be peat beds under the sediments that will contain valuable information on past environments as well as the potential for good preservation of archaeological artefacts and structures.

More recent archaeological components include structures associated with rabbit warrens (warrener's house, warren boundaries) and the marram grass plantings mainly dating from the last century. Both the dunes between Lytham and South Shore, Blackpool and those at Fleetwood were used as areas for rifle ranges in the late 19th century, those at Rossall Point (now under modern housing) being very extensive, including four 800 yard ranges and an associated camp, 'the Hutments'. In addition substantial areas of the former dunes landscape are now used as golf courses, the most notable of which is Royal Lytham St Anne's.

The **Dunes** HLC type will contain remains of earlier structures related to past uses such as those associated with recreation. However, components are difficult to relate to each other, only being uncovered sporadically and in irregular and limited areas.

- 8.1.3 Similar types and distinguishing criteria: The dunes have been identified using the symbol on the O.S. present day 1:25,000 mapping. There are no similar types.
- 8.1.4 Rarity: Sand dunes cover 0.02% (60 hectares) of Lancashire.

8.2 ENHANCING AND SAFEGUARDING THE TYPE

- *Careful management* is required to balance the competing factors of importance here. Recreational usage in particular can be damaging to both ecological and archaeological importance of the type.
- *Increased research and interpretation* of the archaeological importance of the **Dunes** HLC type would help raise awareness of this element of what is generally perceived to be a wholly natural environment.
- *Monitoring* of the HLC type is important, particularly after high tides or storms, in order to identify buried components and implement mitigation measures.
- As with other coastal HLC types (**Sand and Mudflats, Saltmarsh, Coastal Rough Ground**), the attributes and historic landscape of the **Dunes** should be integrated into Shoreline Management Plans (11b and 11c), and the action plans of the Morecambe Bay and Ribble Estuary strategies.

8.3 KEY SOURCES

Huddart, D., Roberts, G. and Gonzalez, S., 1999, 'Holocene human and animal footprints and their relationships with coastal environmental change, Formby Point, NW England' in *Quaternary International* 55, 29-41.

Morecambe Bay Partnership, 1996, *Morecambe Bay Strategy*

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Ribble Estuary Strategy Steering Group, 1997, *Ribble Estuary Strategy*

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Shackley, S., Wood, R., Hornung, M., Hulme, M., Handley, J., Darier, E., and Walsh, M., 1998, *Everybody has an Impact: a report prepared for 'Climate change in the North West' group*

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9. SALTMARSH

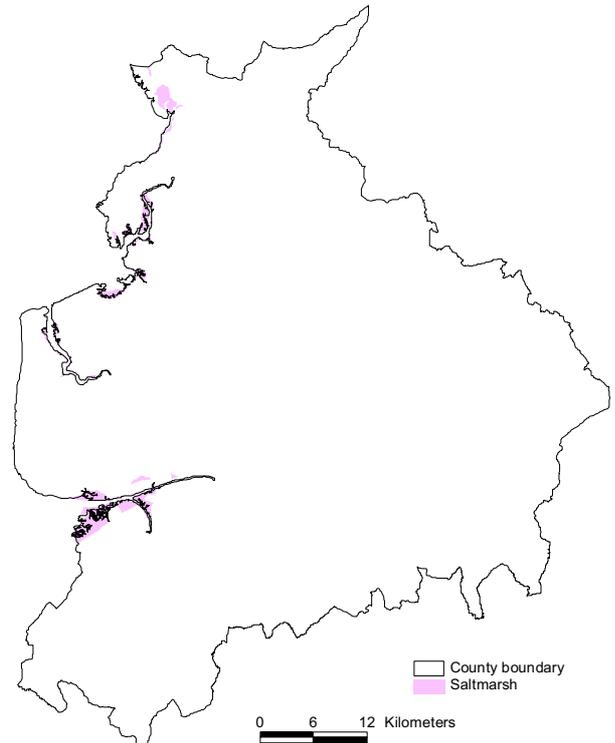
9.1 GENERAL DESCRIPTION

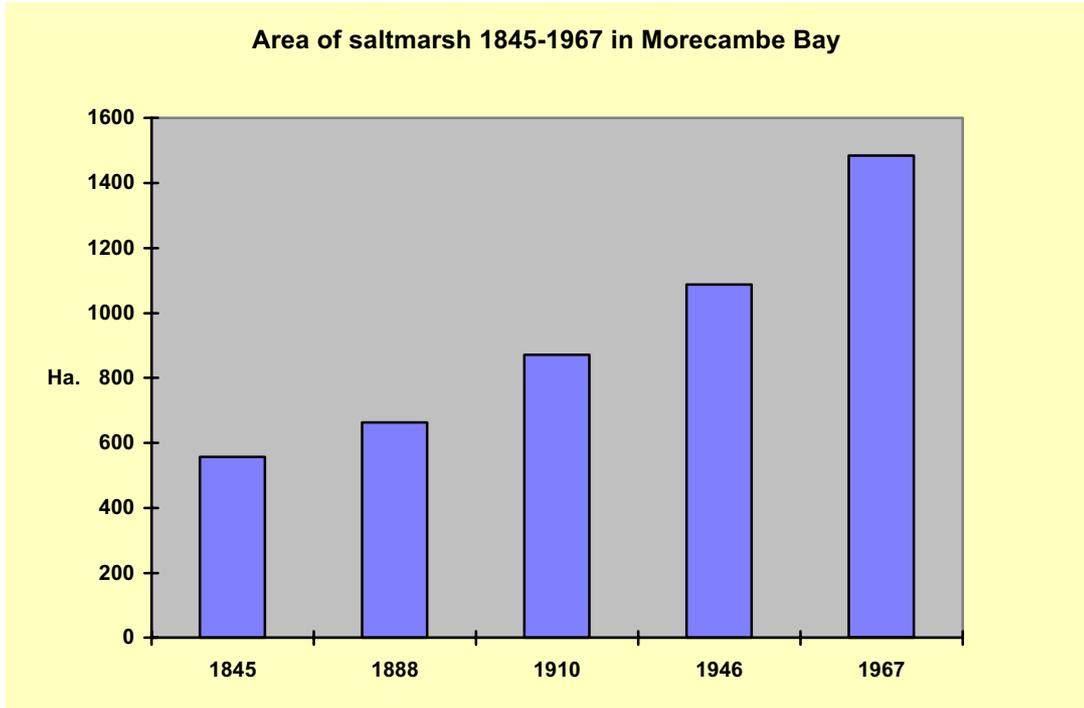
9.1.1 Historical and archaeological background and principal processes:

Saltmarsh has been an important resource for grazing since the medieval period, if not earlier. However, there has been little written on historical management practices. Collection of samphire has been important in some areas of the county, at least on a local economic scale.

Much saltmarsh, along with tracts of former mossland, was reclaimed by drainage. Much of this took place from the mid-18th century to the mid-19th century. However, as the chart below shows, since then the area of saltmarsh has been increasing, in part due to the failure or redundancy of earlier drainage and reclamation schemes. More recently new areas of saltmarsh have been established for wildlife benefit, such as that at Crag Foot, near Silverdale.

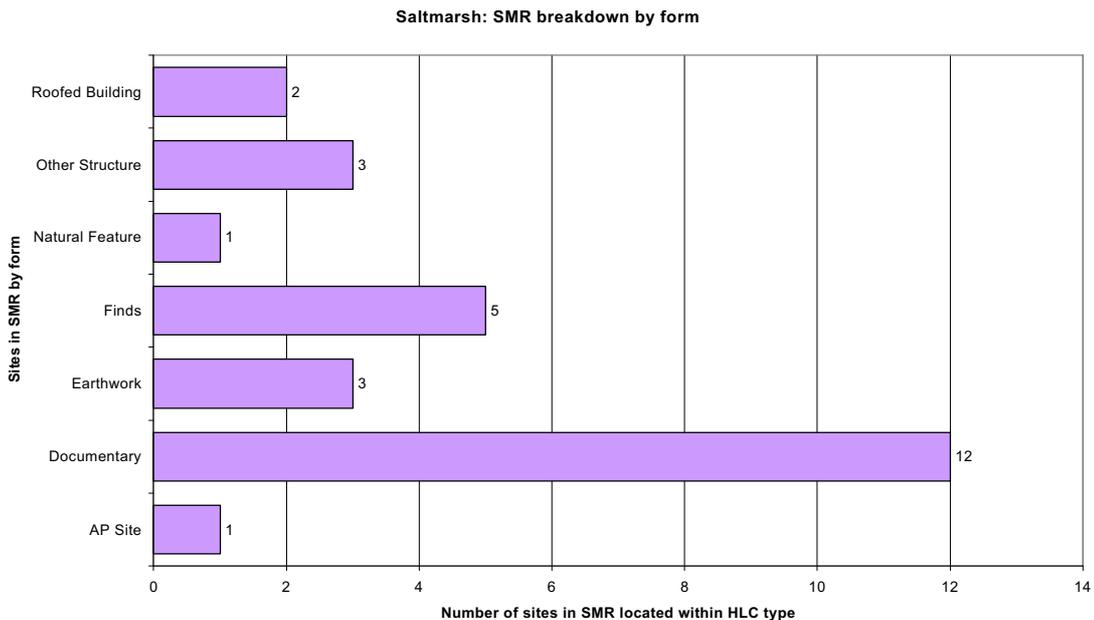
Many of the larger expanses of saltmarsh today are located along the rivers Lune and Ribble. These marshes were considerably smaller in the mid-19th century and have become established due to the management, formalisation and canalisation of these river channels. The Ribble is now confined in a narrow man-made channel allowing the growth of saltmarsh and other estuarine habitats along either side, unencroached by urban development. In the south, the present day saltmarsh at Crossens is several hundred metres seaward of the saltmarsh shown on the 1st edition O.S. map of 1848. This illustrates the dynamic nature of the type, particularly on this part of the coast.



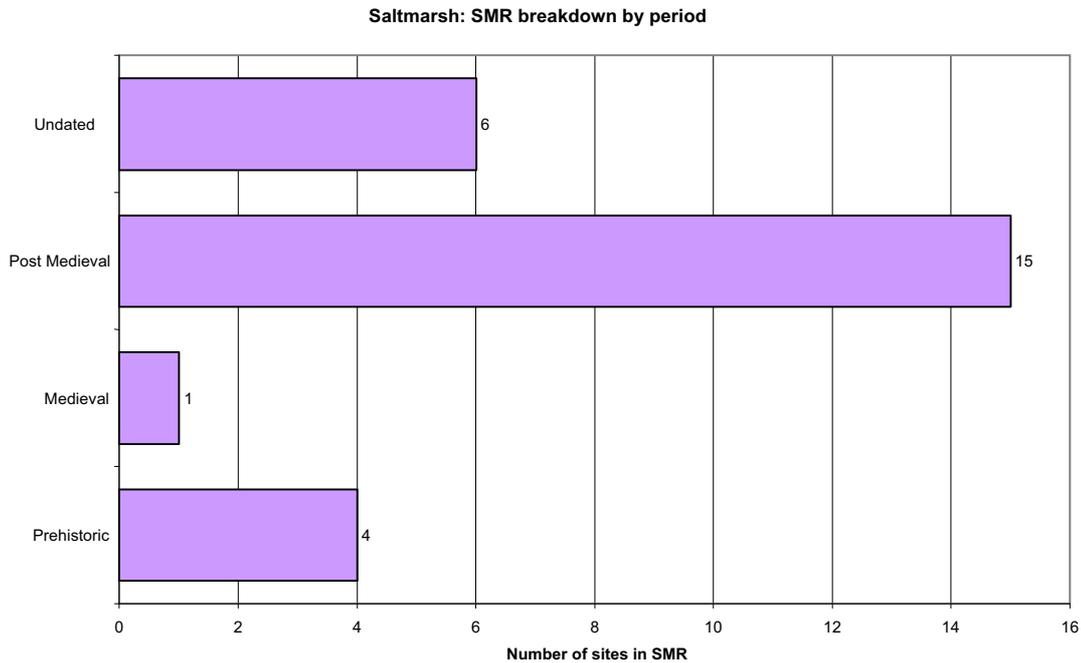


As with other coastal types the saltmarsh would have been exploited as one part of a regime encompassing other grazing lands as well as arable. Unlike other coastal types it has not had the same close interaction with **Settlement** HLC types in the modern period.

9.1.2 Typical historical and archaeological components: Evidence for human intervention within the **Saltmarsh** HLC type includes the boundaries of internal subdivision and sea defences at the interface of the type, usually with either **Sand and Mudflats** or wholly reclaimed land. Such boundaries may comprise ditches or fences, but more usually take the form of marker posts and stones. Otherwise archaeological components are related to relic land uses and may include ruined sea walls and lines of stakes marking successive retreats of sea



defences, landing jetties, tide mills, abandoned and buried boats, a railway line and, at Middleton, the remains of a WWII bombing range.



9.1.3 Similar types and distinguishing criteria: There are no similar types. In the Lancashire area the type has been identified using Phase One Habitat Survey mapping.

9.1.4 Rarity: **Saltmarsh** covers 1% of Lancashire.

9.2 ENHANCING AND SAFEGUARDING THE TYPE

- *Conserve* the historic pattern of coastal reclamation, giving priority to active and then relict sea dykes and defences.
- *Improve* interpretation of the historic dimension of what is commonly perceived to be a 'natural' landscape, in particular the story of land reclamation and saltmarsh management. Any opportunities for interpretation will need to be compatible with the issues of sustainable tourism and their impact upon the wildlife and nature conservation interest.
- *Assess* the impact of coastal protection measures and any other coastal developments that could affect the Saltmarsh HLC type – such consideration should be incorporated within management plans, the Joint Structure Plan and district Local Plans.
- *Develop* opportunities for joint management and monitoring projects in partnership with the regional offices of the Countryside Agency, the Environment Agency and English Nature.

- *Integrate*, with other coastal HLC types (**Sand and Mudflats, Dunes, Coastal Rough Ground**), the attributes and historic landscape of the **Saltmarsh** into Shoreline Management Plans.
- **Saltmarsh** clearly has a positive role in terms of broader coastal management. In some areas the construction of 20th century sea walls without saltmarsh in front contrasts and potentially conflicts with the general character of the surrounding historic landscape. A softer option would be for the maintenance of an earthwork sea-bank behind a periodically flooded saltmarsh, which may be historically and ecologically more desirable. Elsewhere the issue of managed retreat would necessarily involve the potential to create more saltmarsh.

9.3 KEY SOURCES

Coles, B., 1995, *Wetland Management – a survey for English Heritage*, Wetland Archaeology Research Project Occasional Paper 9

Middleton, R., Wells, C. E., and Huckerby, E., 1995, *The Wetlands of North Lancashire*, North West Wetlands Survey, 3, Lancaster Imprints, 4, Lancaster

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10. ROUGH LAND HLC TYPES

Included in this category are **Lowland Moss & Grassland/Scrub**, **Moorland**, and **Reverted Moorland**.



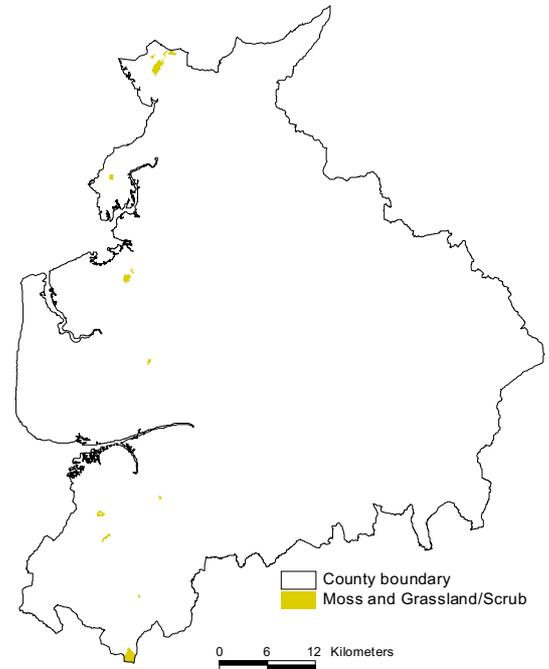
Moorland and reverted moorland form an important part of the Lancashire landscape, accounting for some 13% of the county's land area. Conversely lowland moss, grassland and/or scrub are of small extent in today's landscape, just over 600 hectares (0.2%). However, the latter type was previously far more extensive and the story of its reclamation is a key theme in the making of modern Lancashire. Moorland was also more extensive and has been gradually reclaimed for farming with evidence of intakes around its fringes and older reclaimed areas further away from its present moorland extent. Reverted moorland attests to the reversal of that process, occurring mainly where moorland reclamation has failed or as a result of deliberate rural abandonment to protect water supplies.



11. LOWLAND MOSS & GRASSLAND/SCRUB

11.1 GENERAL DESCRIPTION

11.1.1 Historical and archaeological background and principal processes: **Lowland Moss and Grassland/Scrub** covers 631 hectares of Lancashire of which the greater part is moss (565 hectares). This represents the last remaining vestiges of a once widespread landscape which, three hundred years ago, extended over many thousands of hectares. The area has been reduced through the cutting of peat for fuel and the improvement of land through drainage. Today most of the former mossland is used for agriculture with much of the prime arable and horticultural land in southwest Lancashire being located there. This is more fully described in the HLC type **Post-Medieval Enclosure**.



Lowland mosses originated some 10,000 years ago. Some started to develop in hollows left after the glaciation, whilst others built up in low-lying waterlogged basins. Periods of marine transgression resulted in significant areas of the lowlands of Lancashire being flooded temporarily between 10,000 and 6,000 years before present. Most of the lowlands at this time were covered by more or less dense woodland. During the Mesolithic and early Neolithic periods it is possible that small clearances were maintained or created deliberately in order to help with hunting by encouraging browsing animals to specific locations (Middleton *et al* 1995, 201). Sites tend to be located at the interface of maritime/riverine and dry land resources, and are closely associated with the developing wetland landscape. More extensive peat growth took place when the climate deteriorated and became wetter during the late Bronze Age and early Iron Age periods. There appears to be little activity in the lowlands in the Iron Age and evidence points to a fairly inhospitable environment at that time. The same may be said of the mid-to-late Romano-British period where there is evidence of cereal cultivation and woodland clearance taking place around the moss and mire fringes but little activity on the main body of the mosses in terms of exploitation or the deposition of votive offerings. Offerings and deposition do increase towards the end of the period, although perhaps not on the scale seen elsewhere, such as in Cheshire. In the historical period peat, alongside wood and charcoal, was a main fuel until the railways facilitated the cheap transportation of coal. The drier carr areas were used for pasture but the wetter mosses were probably little used beyond hunting and resource collection. Even so there is considerable documentary evidence of medieval mossland reclamation, particularly by the monastic establishments of Cockersand Abbey and Burscough Priory. Whilst the edges of the mossland were reclaimed by drainage for cultivation in the medieval period, it was not until the 18th and 19th centuries that advances in technology allowed reclamation programmes to spread into the middle of the mosses.

Even in the small number of locations where lowland moss survives it has usually been truncated by earlier digging and has shrunk due to the dewatering of the surrounding improved farmland. This clearly has a knock-on effect for the archaeological and palaeo-environmental evidence contained therein.

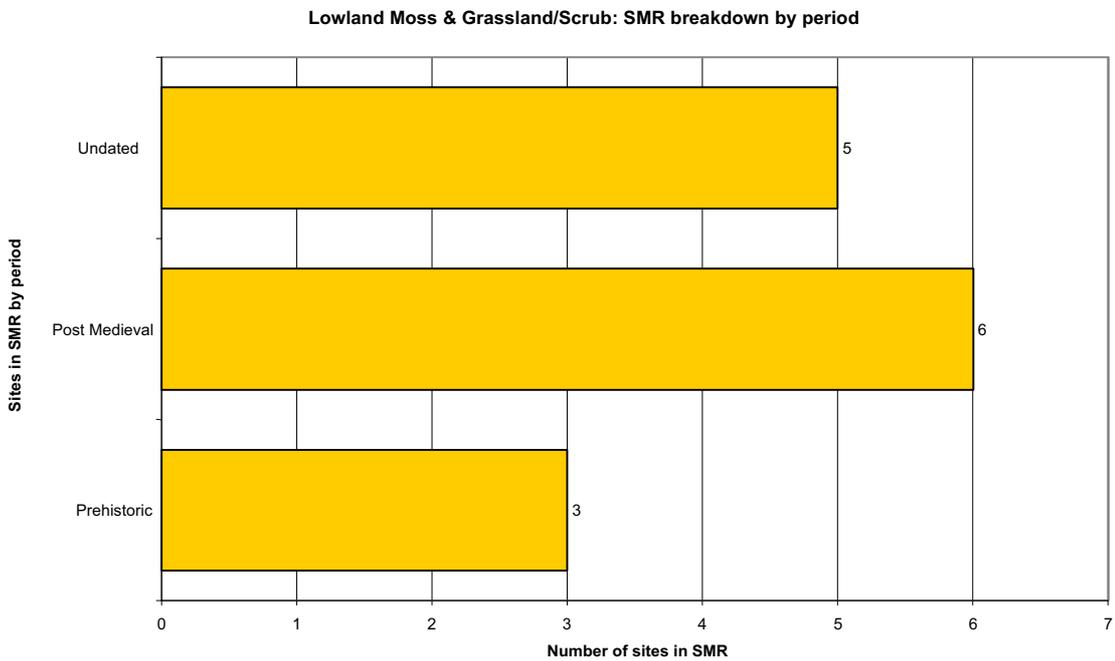
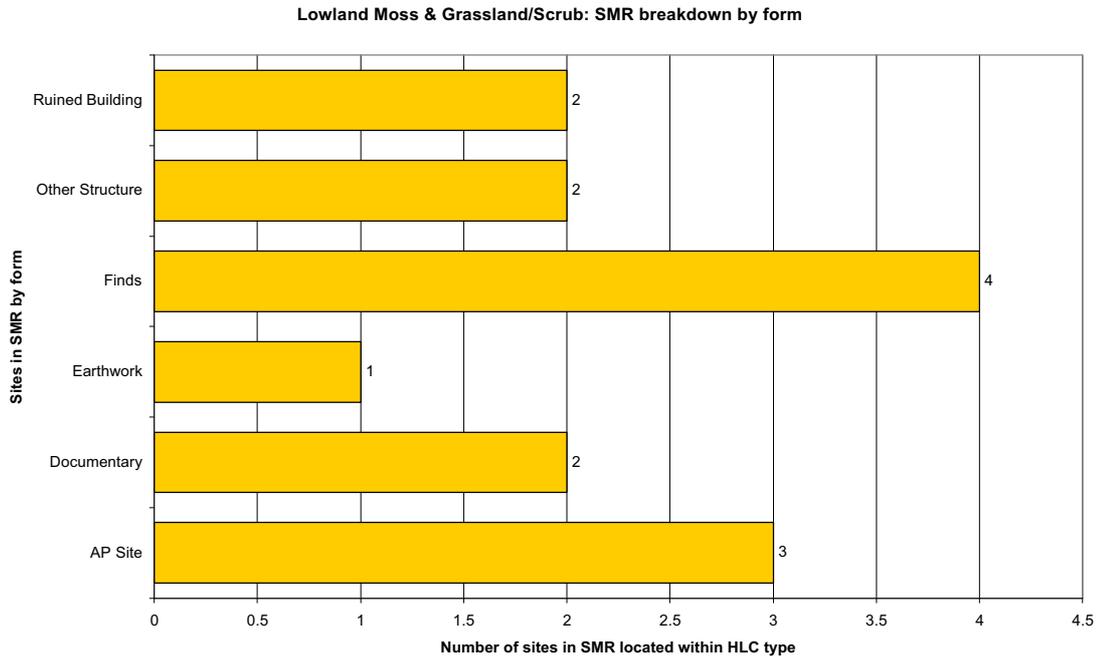
Lowland Moss is a valuable habitat type with its associated flora and fauna and each HLC-defined area is also protected as an SSSI. Those identified in the present project include the mosses of Hawes, Leighton to the north of Yealand Redmayne, Heysham, Winmarleigh, Martin Mere and Simonswood.

The few areas of grassland or scrub identified include Carr House Green Common and a number of other very small areas.

Mosses and areas of rough grass would have played an important part in the former agricultural system, particularly as other parts of the landscape were increasingly enclosed for private use. They all afforded areas of common grazing, whilst the mosses also provided other products such as fish and game, peat for fuel, rushes for lamps, reeds for thatching and woodland fringe resources for basketmaking (a once traditional industry of West Lancashire).

- 11.1.2 Typical historical and archaeological components: The most significant archaeological component of the type is the likelihood of well-preserved prehistoric remains, both organic and inorganic, under and within the mossland peat. In addition mossland may contain evidence for early roads and tracks, boundary markers and failed reclamation schemes, which may include the layout of drainage ditches and sluices. Eroded areas of peat in West Lancashire, and particularly within the Fylde, show considerable potential for increasing the archaeological understanding as finds and sites become visible. However, preservation of such sites is severely compromised by the fact that erosion down through the peat has to take place to uncover these remains. This highlights the importance of the remaining areas of peat, both in this **Lowland Moss and Grassland/Scrub** HLC type and in the HLC **Enclosed Land** types derived from the drainage of former mossland. Areas of old grassland and scrub may preserve earthworks and other features as well as below-ground undisturbed archaeological deposits.

| TYPE1 | Tot. Type1 in county | Tot. Type1 in LMGS | Ha./site in LMGS | % of Type1 tot. in LMGS |
|-----------------------|----------------------|--------------------|------------------|-------------------------|
| Total SMR sites | 13902 | 14 | 45 | |
| Building | 150 | 2 | 316 | 1% |
| Earthwork | 117 | 2 | 316 | 2% |
| Pond | 112 | 2 | 316 | 2% |
| Causeway | 1 | 1 | 632 | 100% |
| Chimney | 4 | 1 | 632 | 25% |
| Lime Kiln | 194 | 1 | 632 | |
| Net sinker | 1 | 1 | 632 | 100% |
| Stone:chert flake | 2 | 1 | 632 | 50% |
| Stone:flint arrowhead | 16 | 1 | 632 | 6% |
| Stone:net sinker | 3 | 1 | 632 | 33% |



11.1.3 Similar types and distinguishing criteria: The type was identified using the Phase One Habitat Survey. It may include areas that are fairly wooded as well as more open areas and so could be confused with the **Woodland** HLC types.

11.1.4 Rarity: **Lowland Moss and Grassland/Scrub** covers 0.19% of Lancashire.

11.2 ENHANCING AND SAFEGUARDING THE TYPE

- *Avoid* development or changes in land management regimes that have a significant dewatering effect upon the surviving areas of lowland moss. All such proposals should be informed by an appropriate impact assessment that pays specific regard to the palaeo-environmental potential of the type.
- *Encourage* re-wetting options, primarily as a part of agri-environment scheme agreements.
- *Preserve* the last substantial site of surviving 'topmoss' in the county at Fenton's Cottage (SD 40404493).
- Much of the type is protected by SSSI legislation. Other designations such as SPA or Lancashire Biological Heritage Site status sometimes also apply.
- Those areas not so protected should be assessed for their possible inclusion as SSSIs.
- The mosses are important potential reservoirs of archaeological information and as such any proposed changes to them and their extent should be fully discussed with the Specialist Advisor for Archaeology and Heritage at Lancashire County Council.

11.3 KEY SOURCES

Coles, B., 1995, *Wetland Management – a survey for English Heritage*, Wetland Archaeology Research Project Occasional Paper 9

Fitton, A. H., 1965, 'Farming the mosslands of Lancashire', in *Journal of the Royal Agricultural Society*, **126**, 73-82

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Lancashire County Council Phase One Habitat Survey

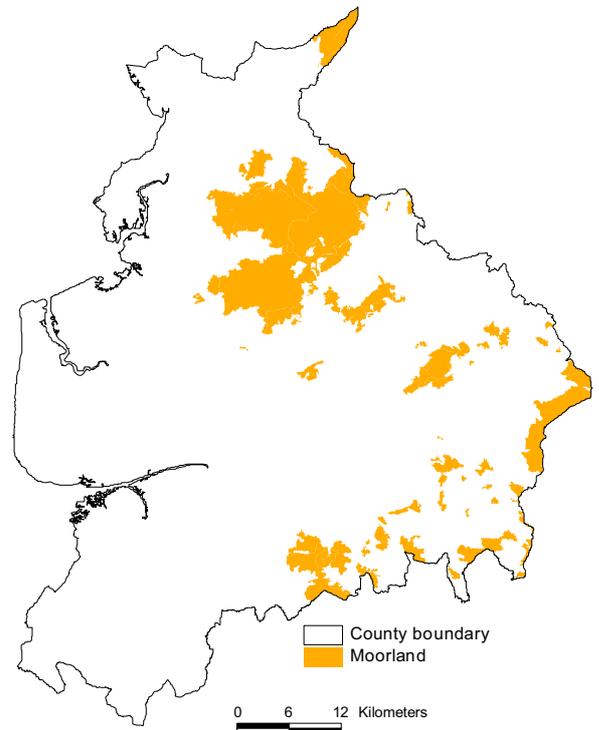
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North West Wetlands Survey Annual Reports 1990-1994

12. MOORLAND

12.1 GENERAL DESCRIPTION

12.1.1 Historical and archaeological background and principal processes: **Moorland** covers almost 36,000 hectares of Lancashire. Of this 15,000 hectares are unenclosed, 13,600 hectares are very large enclosures (often of several hundred hectares) and just over 7,000 hectares are divided into smaller enclosures. Much of the area was used in the past for communal grazing, only more recently being enclosed. Most of the enclosure boundaries are drystone walls, many of which will date from the late 18th and 19th centuries, although earlier earth and stone banks, boundary ditches and drainage dykes are also in evidence.

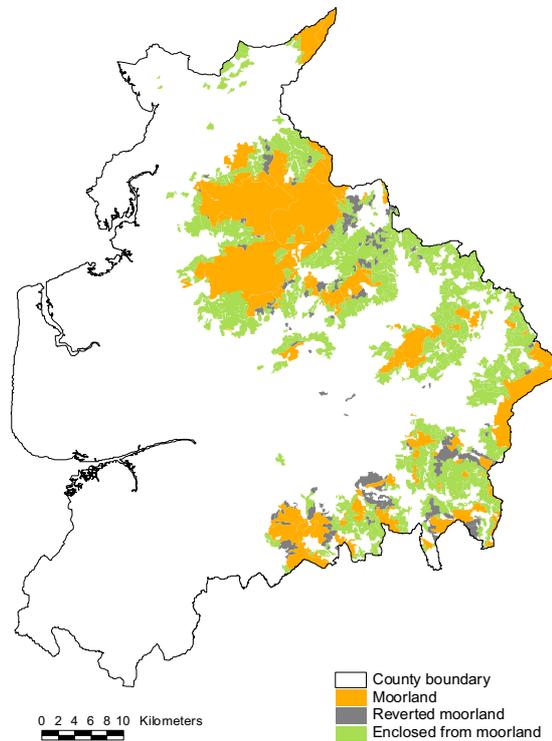


Moorland is as much a man-made landscape as any other HLC type. 5,000 years ago most of the current moorland area was covered in woodland. Subsequent clearance, management and animal grazing have combined with the harsh climate and the development of acidic soils and peat to create the moorland landscape visible today. The table below outlines a chronology of climatic, environmental and human change related to moorland in Lancashire.

The slopes on the other hand have been wooded and cleared intermittently from the early Bronze Age, with final clearance of the lowland areas not occurring until sometimes late into the historic period (I. Jones work in Craven has a moss site not cleared until AD600).

| PERIOD | LANDSCAPE DEVELOPMENT |
|---|--|
| Late Glacial (c. 13,500-10,000 cal BC) | Arctic/Alpine 'meadow' communities and tundra |
| Early Mesolithic (c. 10,000-6,000 cal BC) | Increasingly wooded but small trees up to 4m, e.g. dwarf birch being replaced by tree birch and hazel sometime around 9,000-8,000 cal BC. After 8,000 cal BC pine appears. Tree line to about 1000ft |
| Late Mesolithic (c. 6,000-4,000 cal BC) | Warmer, so increasing trees with oak and alder replacing pine, tops become wooded also wetter – peat begins to form. Use of fire by Mesolithic peoples to encourage game particularly on the moor tops |
| Neolithic (c. 4,000-2,500 cal BC) | Significant decline of elm (3,990-3,640 cal BC) followed, after a brief rise in lime, oak, alder and birch, by a reduction in most tree species and an increase in evidence of human cultivation |
| Late Neolithic/early Bronze Age (c. 3,000-2,300 cal BC) | Extensive deforestation, increased activity including sporadic and small-scale cultivation – up to the top of the moors. Peat extent similar to that of today |
| Mid-to late Bronze Age (c. 2,300-1,000 cal BC) | Upper areas are marginal and used for funerary and other monuments |
| Late Bronze Age/early Iron Age (c. 1,000-300 cal BC) | Wetter again with significant peat growth. Areas cleared earlier were left to regenerate |
| Mid- to late- Iron Age (c. 300-0 cal BC) | Extensive deforestation takes place and whole landscape takes on character of a farmed managed landscape. Peat extends down to 300m |
| Late Iron Age/Roman and post-Roman periods (c. 100BC – cal AD700) | Gradual improvement in climate (warmer and drier). Further clearance on moorland margins for pastoral use and higher levels of cereal cultivation |
| Post-Roman/early Medieval (c. 700 cal AD- 1,100 cal AD) | Climate possibly becomes wetter and colder resulting in a return to more wooded conditions. Many clearings re-vegetated with secondary woodland as land is abandoned |
| Later Medieval period (c. 1,100 cal AD- 1,500 cal AD) | Climatic warming in the first part of the period sees cultivation at altitudes not possible since the Bronze Age. Initially the imposition of Forest Law in Bowland area may have encouraged a degree of regeneration of scrub. Climatic deterioration starting in the 14 th century leads to expansion of blanket bog on the fells |
| 16 th -17 th centuries | Technological improvements and pressure on the land allows more intakes into upland moor |
| 18 th -19 th centuries | Further moorland improvement and subdivision of areas of former common pasture on upland moor |

Lancashire Moorland and former moorland



An indication of the former extent of moorland can be gained through the HLC by mapping those current areas of **Enclosed Land** which have been interpreted as being enclosed from moorland plus the **Reverted Moorland** type. This is still likely to be an underestimate given the constraints of the project.

The type is characterised by its vegetation, whether heather or grass moor, wet or dry. It is used today for stock grazing, mainly of sheep, and game shooting. Three owners – the Duchy of Lancaster, the Duke of Westminster and North West Water – predominantly own the largest block, in the Forest of Bowland. This influences the management of the area to a significant degree.

Very little settlement is visibly located within moorland, and where it exists, it tends to be confined to isolated farmsteads and buildings in the enclosed

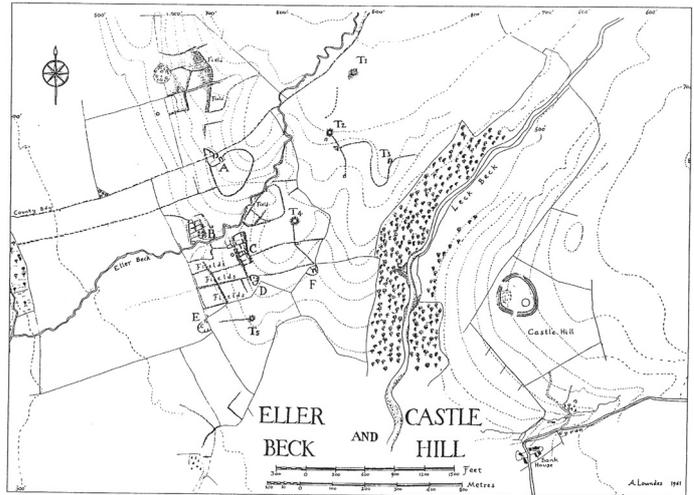
moorland. Many of these were built between the 17th and 19th centuries as the limits of farming were extended into less favourable areas through population pressure, improved agricultural and stock-rearing techniques, changes in land ownership and the move to a dual economy whereby farming subsistence was supplemented by other economic activities such as weaving, lime burning or quarrying. A particular feature of some parts of the moorland landscape are areas which were deliberately depopulated in the late 19th century by the water authorities in order to ensure clean water supplies. Such depopulation has resulted in the survival of a considerable number of derelict houses and farm buildings. This is also a feature of the **Reverted Moorland** HLC type.

The **Moorland** HLC type was an integral part of past economic activity, with important summer grazing pastures, major supplies of stone for road and house building and minerals that were mined as well as large sources of fuel, both peat and furze.

- 12.1.2 Typical historical and archaeological components: Moorland is an important area for the preservation of archaeological remains, both upstanding and buried. In particular remains of Bronze Age and earlier periods are likely to be well represented, these being buried under and within the peat, which also served to make the area unfavourable for later, potentially destructive activities. Cairns and other funerary monuments are well represented within this type, which also contains the best-preserved areas of prehistoric (and later) settlement and field systems in the county (at High Park, Leck).

Since the Bronze Age most moorland has been used mainly for extensive grazing of stock. In the medieval period many of these areas came under Forest Law and, either concurrently or later, became reorganised as cattle ranches or vaccaries. Features associated with these may be present, such as boundary banks and walls. In some areas past industrial

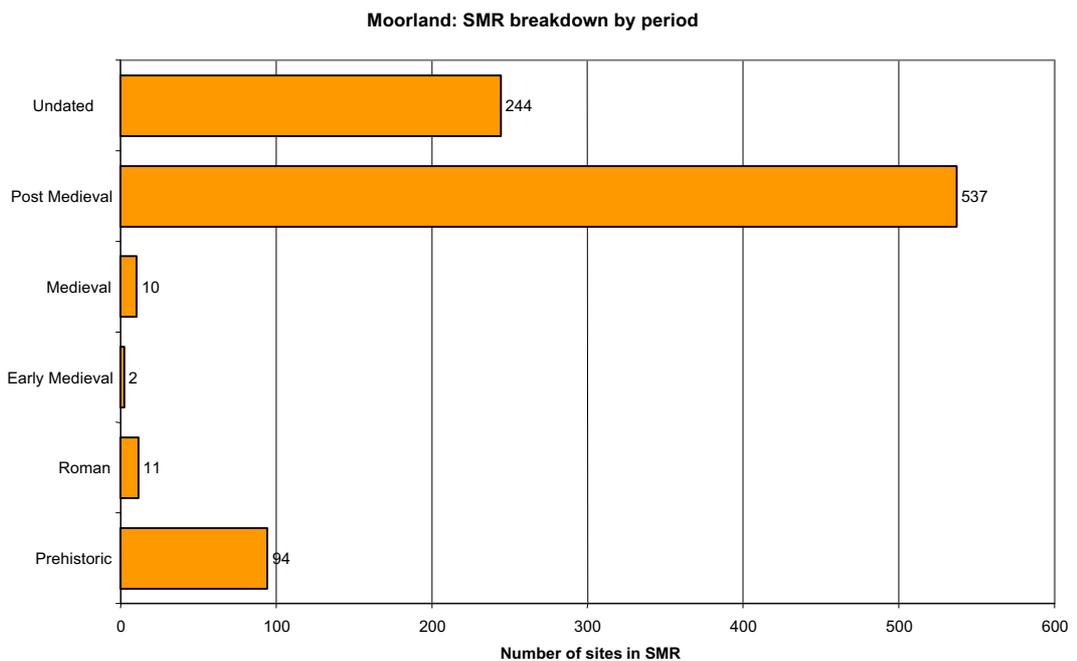
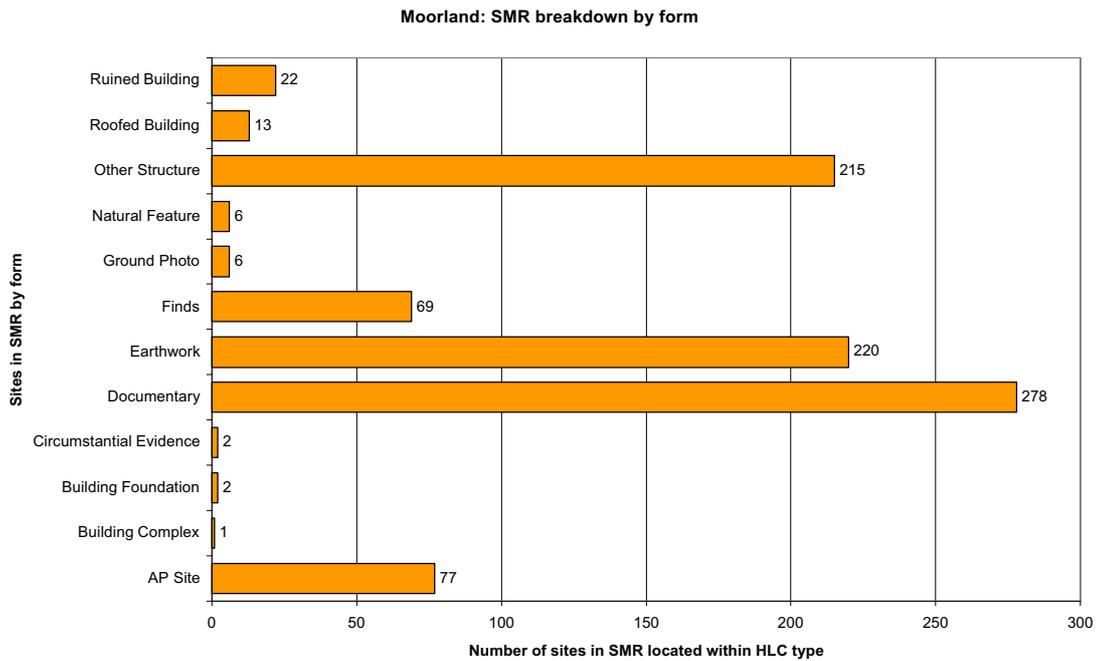
activity is prevalent, such as quarries, stone hushing and evidence for mining. Drystone walls are important boundaries within an otherwise often open landscape. Features associated with shooting and game management, such as butts or hunting huts, may also have some antiquity. Other archaeological and historical features include: shelter walls and belts, animal pounds, high level tracks, roads and pack-horse routes, wayside crosses, water management structures, ditches, drainage grips and clearance cairns.



| TYPE1 | Tot. Type1 in county | Tot. Type1 in M | Ha./site in M | % of Type1 tot. in M |
|------------------|----------------------|-----------------|---------------|----------------------|
| Total SMR sites | 13902 | 911 | 39 | 7% |
| Quarry | 776 | 116 | 309 | 15% |
| Cairn,round | 58 | 50 | 718 | 86% |
| Wall | 61 | 36 | 997 | 59% |
| Boundary Stone | 117 | 32 | 1122 | 27% |
| Colliery | 277 | 28 | 1282 | 10% |
| Trackway | 95 | 27 | 1329 | 28% |
| Shooting stand | 27 | 26 | 1380 | 96% |
| Sandstone Quarry | 258 | 21 | 1709 | 8% |
| Sheep fold | 37 | 21 | 1709 | 57% |
| Building | 150 | 20 | 1795 | 13% |
| Cairn,long | 19 | 18 | 1994 | 95% |
| Stone:flint | 35 | 18 | 1994 | 51% |
| Bield | 16 | 14 | 2564 | 88% |
| Mound | 45 | 14 | 2564 | 31% |
| Cairn | 26 | 13 | 2761 | 50% |
| Chipping floor | 14 | 13 | 2761 | 93% |
| Bank | 48 | 12 | 2991 | 25% |
| Enclosure | 66 | 11 | 3263 | 17% |
| Field Boundary | 186 | 10 | 3589 | 5% |
| Ridge and Furrow | 192 | 10 | 3589 | 5% |

| TYPE1 | Tot. Type1 in county | Tot. Type1 in M | Ha./site in M | % of Type1 tot. in M |
|----------------|----------------------|-----------------|---------------|----------------------|
| Shooting stand | 27 | 26 | 1380 | 96% |
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| Building | 150 | 20 | 1795 | 13% |
| Colliery | 277 | 28 | 1282 | 10% |

See Section 4.2 for an explanation of the tables set out above.



12.1.3 Similar types and distinguishing criteria: This type is similar to **Reverted Moorland**, but is distinguished in the mapping process by its identification as extant moorland on the 1st Edition 6" O.S. map of c.1850

12.1.4 Rarity: **Moorland** covers 11% of Lancashire.

12.2 ENHANCING AND SAFEGUARDING THE TYPE

- *Undertake survey.* With few exceptions the moorland of Lancashire has never undergone a systematic programme of research to identify its (historic) heritage assets (archaeological sites, palaeo-environmental resource, built heritage and historic landscape). The reasons for such a paucity of research are associated with the visibility of the evidence, much of which remains buried under (or within) the peat, the types of activity carried out on the HLC type, issues concerning access to the resource and a lack of researchers. One primary consequence of this lack of information is that the historic environment is often under-represented in both strategic and local decision-making. This leads to the potential for damage and a failure to take up the opportunities provided by the historic environment to new development, environmental and community projects, land-use management techniques, local economy and tourism. On the rare occasions when survey work has been undertaken, for example in parts of the North West Water Estate, the number of known sites and structures has been multiplied tenfold. Further research and survey are therefore required in order to understand more fully the archaeological potential represented within this HLC type.
- *Conserve* the distinctive high altitude field enclosures, buildings and communications network. The network of walls, historic trackways and isolated agricultural buildings is a distinctive feature of the moorland landscape, providing time depth and inter-county historical variation – priority should be given to those features according to their period, rarity, documentation, group value, survival/condition, fragility/vulnerability, diversity and potential. Where stabilisation or restoration is not feasible the base courses and foundation stones of enclosure walls and buildings should be maintained as evidence of former activity.
- *Conserve* the evidence for relic occupation and landuse. Moorland contains the best-preserved earthwork evidence for prehistoric settlement, ritual use and land management in the county. It also includes vaccary and forest features and industrial landscapes, which are distinctive to Lancashire. Priority will be given to the preservation of these characteristic attributes of moorland landscape.
- *Improve management.* Improve the management regime (and advice to it) to minimise the threat of overgrazing and erosion, and damage through the growth of bracken or furze, reversion and scrubbing up. Positive management should be encouraged, potentially with the aid of agri-environmental schemes. Maintenance of thin peat soils, and hence the archaeological remains within them, may be promoted through rotational heather burning. Bracken should be controlled by spraying as opposed to mechanical means that may damage the archaeological resource. Stone clearance and the use of cairns and buildings as sources of building material must be avoided.
- *Avoid* damage to the historic environment through mineral exploitation, treeplanting and agricultural improvement. Full archaeological assessment prior to decision-making should be carried out where appropriate.
- *Enhance* interpretation. The role of humans in the creation and management of moorland is not well appreciated. Opportunities for increased and improved interpretation, and the appropriate extension of access, should be taken whilst at the same time deflecting visitors from sensitive historic attributes.

- Much of this HLC type falls within SSSIs and other nature conservation designations, and is subject to the requirements of the relevant legislation, guidance and policy. Attention should be given to emphasising the historic dimension to such designated areas, either directly or indirectly, and to ensuring that it is considered alongside the 'primary' natural attributes.

12.3 KEY SOURCES

Crosby, A. G., 1998, *Leading the way: a history of Lancashire's roads*. Lancashire County Books

Darvill, T., 1986, *The archaeology of the Uplands: a rapid assessment of archaeological knowledge and practice*. CBA Research Report, London

Darvill, T., 1987, *Ancient Monuments in the Countryside*. English Heritage, London

Howard-Davis, C. L. E., 1996, 'Seeing the sites; survey and excavation on the Anglezarke uplands, Lancashire', in *Proceedings of the Prehistoric Society*, **62**, 133-66

Lancaster University Archaeological Unit, 1997, North West Water's Forest of Bowland Estate, Lancashire: Archaeological Survey. Unpublished report.

Mackay, A. W, and Tallis, J. M., 'The recent vegetational history of the Forest of Bowland, Lancashire, UK', in *New Phytologist*, **128**, 571-584

Porter, J., 1974, 'A forest in transition: Bowland 1500-1650', in *Transactions of the Historic Society of Lancashire and Cheshire*, **125**, 4-60

Porter, J., 1978, 'Waste land reclamation in the sixteenth and seventeenth centuries: the case for south eastern Bowland 1550-1630', in *Transactions of the Historic Society of Lancashire and Cheshire*, **127**, 1-23

Stonehouse, P., 1994, 'Mesolithic Sites on the Pennine Watershed', in *Archaeology North West*, **8**, 38-47

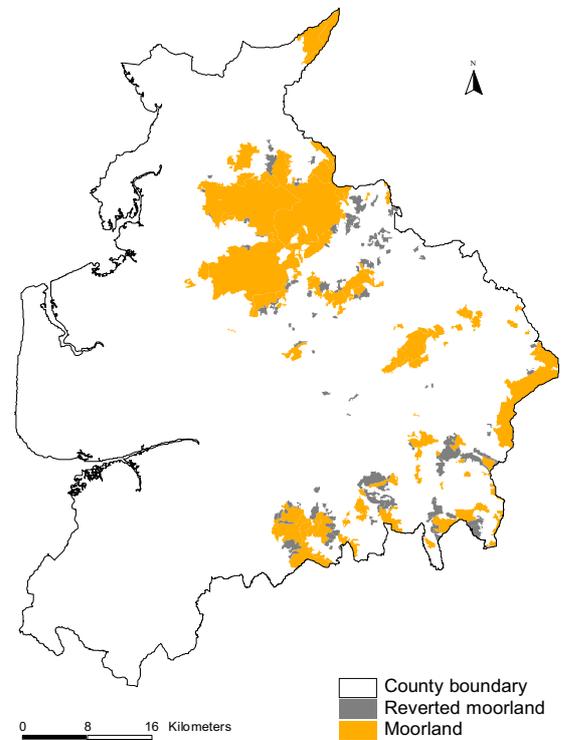
Tallis, J. H., and McGuire, J., 1972, 'Central Rossendale: the evolution of an upland vegetation', in *Journal of Ecology*, **60**, 721-37

13. REVERTED MOORLAND

13.1 GENERAL DESCRIPTION

13.1.1 Historical and archaeological background and principal processes: **Reverted Moorland** covers just less than 7,000 hectares of Lancashire. It is characterised by rough moorland vegetation within enclosures, usually drystone walled. There are derelict buildings and other features present within the enclosed areas. Much of the type originates from fairly short-lived intakes from moorland dating from the late 17th to mid-19th century. However, about 32% may date from the medieval or earlier periods, some of the enclosure pattern and placenames here being indicative of earlier intakes. More than half of this potentially earlier enclosure from moorland lies in East Lancashire, whilst a further concentration is found on the eastern fringe of the Forest of Bowland.

Lancashire
Reverted moorland and moorland



Predictably, **Reverted Moorland** occurs on the fringes of the **Moorland** type and would have had strong links with its neighbouring HLC type. In particular it would have afforded an area of more concentrated activity which went hand in hand with the more extensive activity on the moorland, notably summer grazing. Some areas of Reverted Moorland would have been cultivated but the majority was primarily valued for the better grazing it offered. Such differences can be picked out today in the contrasting vegetation and earthworks: for example reverted moorland contains areas of narrow ridge and furrow indicating late 18th/early 19th century cultivation. In addition small-scale industry, either within the buildings (textiles, hat-making) or nearby (quarrying, mining) was commonly carried out as part of a dual-income economy that was prevalent in these areas. This resulted in numerous small-holdings and has led to a close association of the type with features relating to these industries, even though the features may lie within the **Moorland** type.

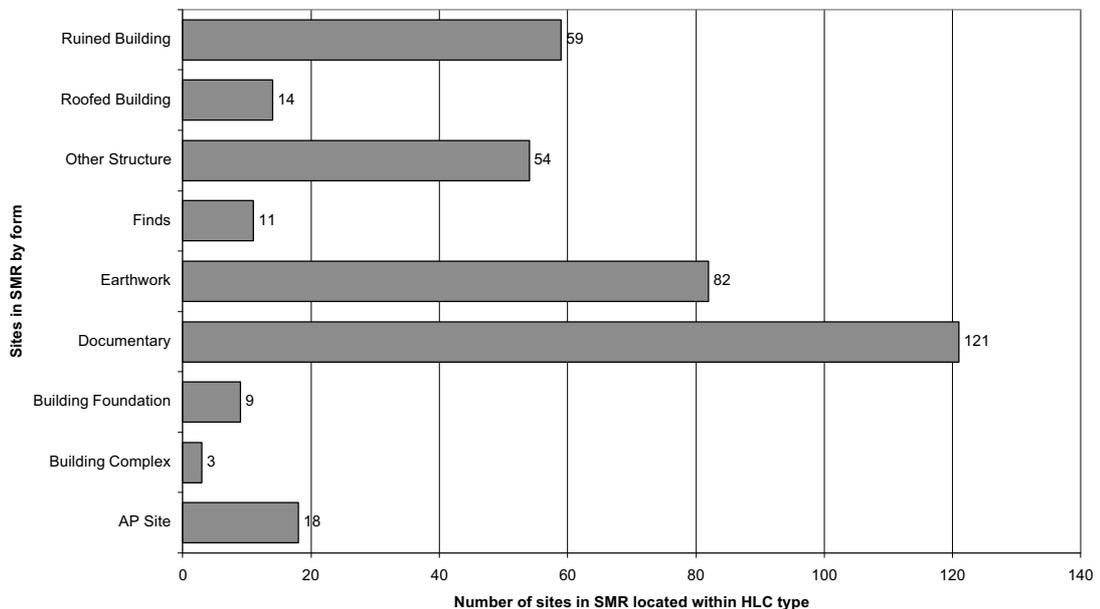
As with the **Moorland** HLC type, the water companies deliberately depopulated some areas of farmed upland in the late 19th and 20th centuries in order to ensure clean water supplies for the burgeoning industrial towns. The type therefore also originates through corporate abandonment as a matter of policy on behalf of the landowners, or as a consequence of a demise in one aspect of the dual-economy. An example of the latter is the collapse of farm/home-based handloom weaving in the latter part of the 19th century through the industrialisation and mechanisation of the weaving process. Once home weaving became uneconomic then the income derived from farming very small marginal holdings became insufficient on its own to sustain a living and land was consequentially abandoned. In

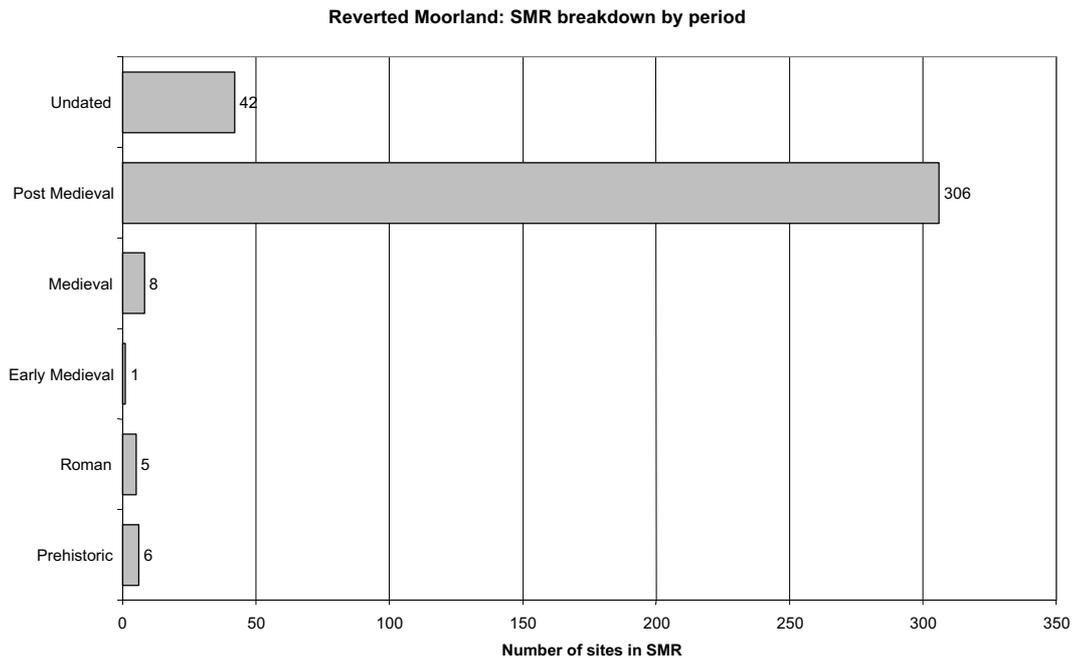
addition, the push of the countryside was undoubtedly paralleled by the pull of the towns, despite often atrocious living conditions.

13.1.2 Typical historical and archaeological components: Drystone walls, stone buildings, water-management structures, plantations and other features relating to past agricultural activity are common here. There are ridge and furrow earthworks within some enclosures. These mainly respect enclosure boundaries, but where they do not they indicate an earlier phase of agricultural activity and re-organisation of the landscape.

| TYPE1 | Tot. Type1 in county | Tot. Type1 in RM | Ha./site in RM | % of Type1 tot. in RM |
|------------------|----------------------|------------------|----------------|-----------------------|
| Total SMR sites | 13902 | 371 | 18 | 3% |
| Quarry | 776 | 39 | 176 | 5% |
| Farmstead | 137 | 34 | 201 | 25% |
| Ridge and Furrow | 192 | 30 | 228 | 16% |
| Farmhouse | 205 | 26 | 263 | 13% |
| Barn | 104 | 22 | 311 | 21% |
| Sandstone Quarry | 258 | 18 | 380 | 7% |
| House:domestic | 534 | 17 | 403 | 3% |
| Colliery | 277 | 12 | 571 | 4% |
| Hollow way | 33 | 11 | 622 | 33% |
| Trackway | 95 | 11 | 622 | 12% |
| Field Boundary | 186 | 10 | 685 | 5% |
| Lime Kiln | 194 | 9 | 761 | 5% |
| Building | 150 | 4 | 1712 | 3% |
| Cross | 242 | 4 | 1712 | 2% |
| Reservoir | 87 | 4 | 1712 | 5% |
| Road | 179 | 4 | 1712 | 2% |
| Cairn | 26 | 3 | 2282 | 12% |
| Earthwork | 117 | 3 | 2282 | 3% |
| Earthwork,linear | 27 | 3 | 2282 | 11% |
| Mill | 367 | 3 | 2282 | |

Reverted Moorland: SMR breakdown by form





13.1.3 Similar types and distinguishing criteria: This type is distinguished from **Moorland** by its existence on the 1st edition O.S. 6" mapping as enclosed agricultural land without rough land symbols. It is distinguished from present day **Enclosure** types by the presence of rough ground symbols on present day mapping or their identification as moorland on the Phase 1 habitat mapping.

13.1.4 Rarity: **Reverted Moorland** covers 2.1% of Lancashire.

13.2 ENHANCING AND SAFEGUARDING THE TYPE

- As for the **Moorland** HLC type
- Many of the features in these areas such as drystone walls and buildings are derelict and collapsing. Roofs and stonework have often been taken to be re-used on other buildings and walls. Assessment is required to understand this resource and the magnitude of threats to it into the future in order to devise appropriate strategies to protect it.
- Potentially Reverted Moorland provides an attractive resource for recreation and education. Such use and promotion could help in its future protection.

13.3 KEY SOURCES

Crosby, A. G., 1998, *Leading the way: a history of Lancashire's roads*. Lancashire County Books

Darvill, T., 1986, *The archaeology of the Uplands: a rapid assessment of archaeological knowledge and practice*. CBA Research Report, London

Darvill, T., 1987, *Ancient Monuments in the Countryside*. English Heritage, London

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Lancaster University Archaeological Unit, 1997, North West Water's Forest of Bowland Estate, Lancashire: Archaeological Survey. Unpublished report.

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Porter, J., 1978, 'Waste land reclamation in the sixteenth and seventeenth centuries: the case for south eastern Bowland 1550-1630', in *Transactions of the Historic Society of Lancashire and Cheshire*, **127**, 1-23

Stonehouse, P., 1994, 'Mesolithic Sites on the Pennine Watershed', in *Archaeology North West*, **8**, 38-47

Tallis, J. H., and McGuire, J., 1972, 'Central Rossendale: the evolution of an upland vegetation', in *Journal of Ecology*, **60**, 721-37

14. WOODLAND HLC TYPES

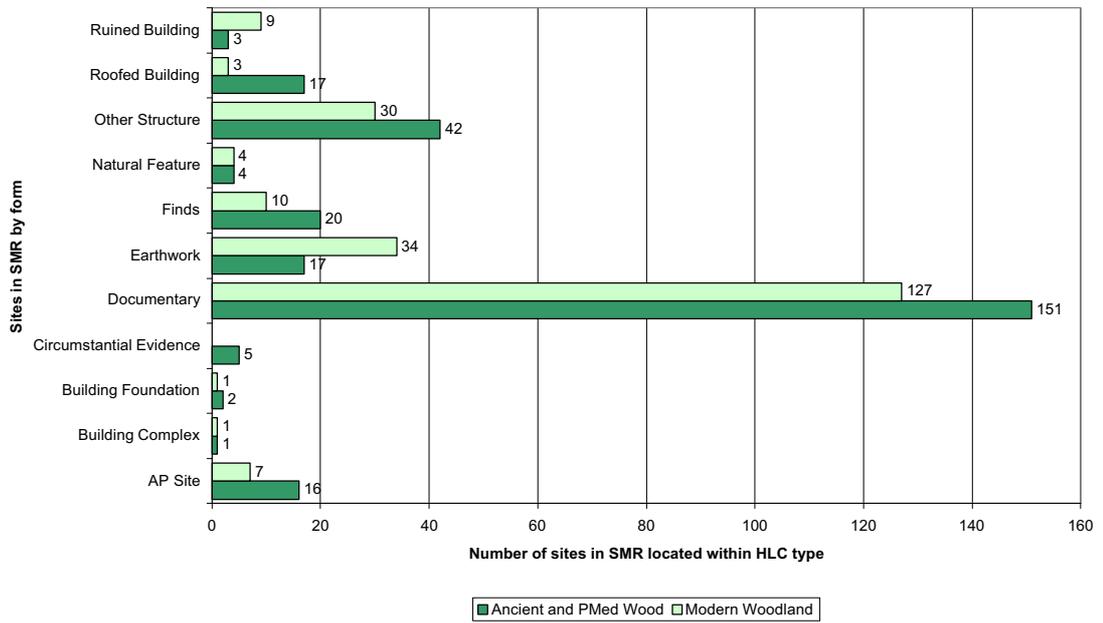
14.1 GENERAL

Lancashire has a low woodland cover (just over 4.5%) compared to other parts of Britain where the average is 11.5%. The county's woodland is almost equally divided into that which was present in 1850 and that which dates from a more modern period. There are important 'Ancient Woodlands' (i.e. those in existence before AD 1600) within the county of several typical regional broadleaf types. There are also extensive areas of modern plantation, usually on former moorland or within moorland fringe areas.

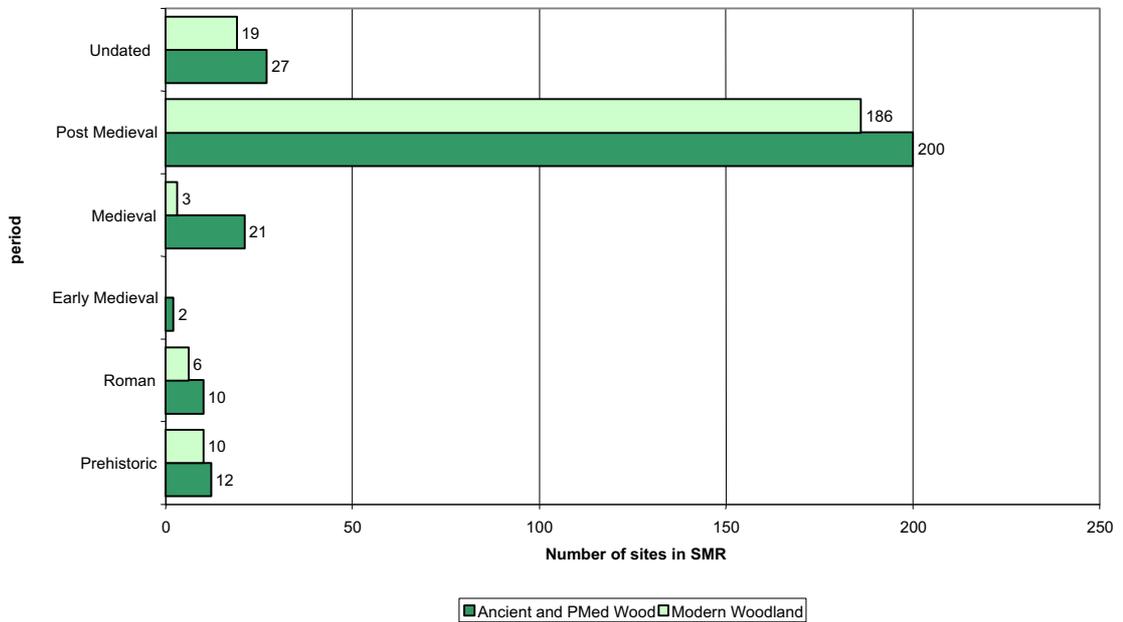


As already outlined, Lancashire had an extensive tree-cover five thousand or so years ago. Climatic deterioration and higher sea levels led to woodland on the lowland being flooded and killed. New woodland was prevented from growing in those areas where peat growth then occurred. In other places increasing use by man led to deforestation with occasional periods of woodland regeneration. In the historic period wood was being used for all manner of building purposes, for manufacturing utensils, plates, vessels and clogs, for charcoal for the iron industry, and for fencing, bobbin and basket making. However, large timber became increasingly hard to find from the 17th century with the result that such timber had to be imported from elsewhere. In 1795 a report (Holt 1795) mentioned 'good woods' in the central part of Lancashire as well as many timber trees grown in hedgerows. It also mentions the woodlands planted around estates as managed woodland and pleasure grounds. Areas south of the Ribble where urban growth and industrialisation were at their greatest were also the areas where woodland disappeared at the fastest rate. The needs of industry for wooden pit props, and charcoal for tanning, salt making and the glass industry, were met by wood from outside the county (Morries 1986, 8). Since the First World War there has been increasing emphasis on tree planting by the Government and this has led to some large plantations of mainly coniferous trees in former moorland areas such as Gisburn Forest.

Woodland: SMR breakdown by form



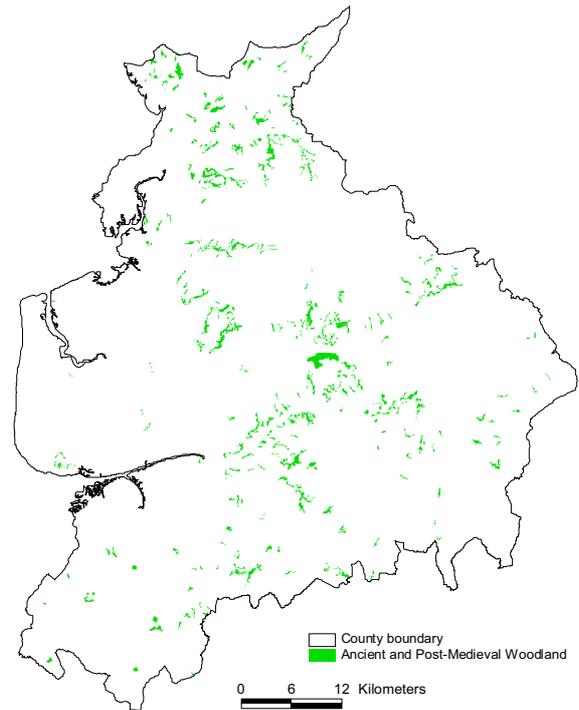
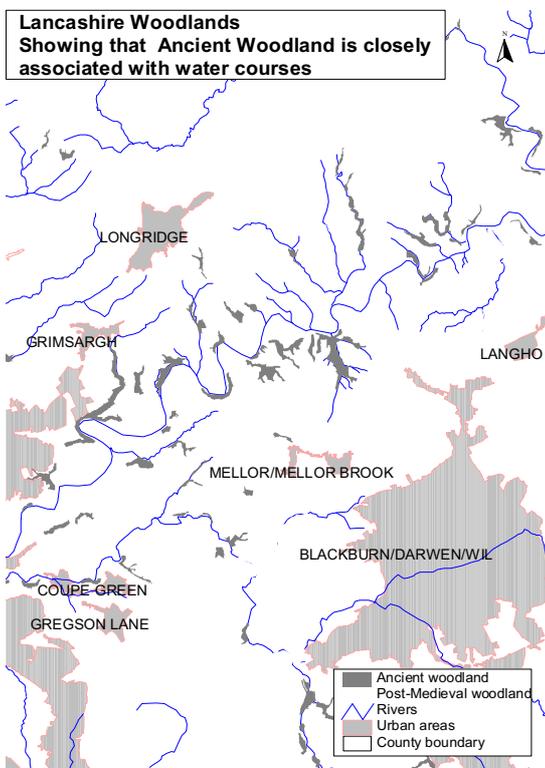
Woodland: SMR breakdown by period



15. ANCIENT & POST-MEDIEVAL WOODLAND

15.1 GENERAL DESCRIPTION

15.1.1 Historical and archaeological background and principal processes:
Ancient and Post-Medieval Woodland covers over 6,000 hectares in Lancashire. The HLC type comprises most of the Ancient Woodland identified by English Nature (less areas of insufficient size for the purposes of the characterisation exercise) and planted woodlands if they were present on the 1st edition 6-inch mapping. Hence the large woodland (335 hectares) in Aighton, Bailey and Chaigley, part of the Parliamentary Enclosure of 1812, is included. Other planted woodlands included within the HLC type but not in English Nature's Ancient Woodland category are those

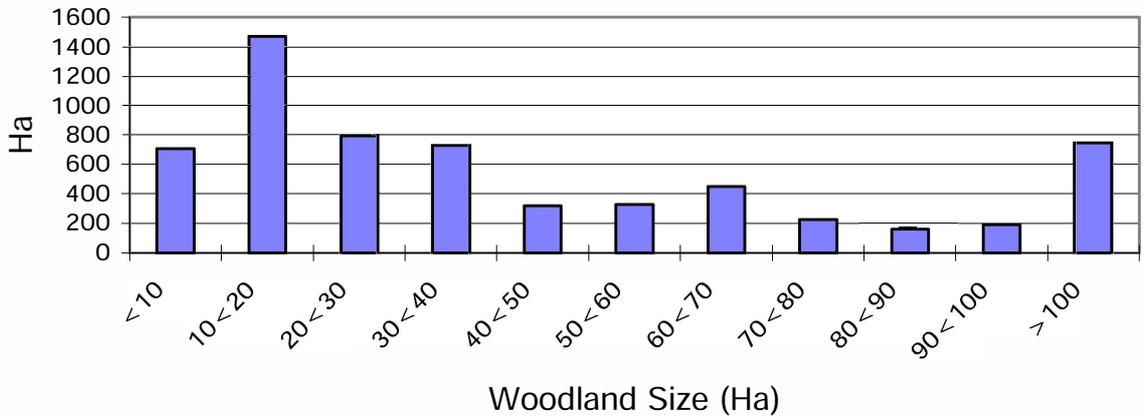


woods associated with parkland (649 ha, 11%). In all, English Nature's Ancient Woodlands cover just over 3,000 hectares, half the area of the HLC type. Although there may be the occasional small woodland missed by English Nature on their inventory it is probable that the remaining 3,000 hectares of woodland in the **Ancient and Post-Medieval Woodland** type is planted woodland of post-medieval date.

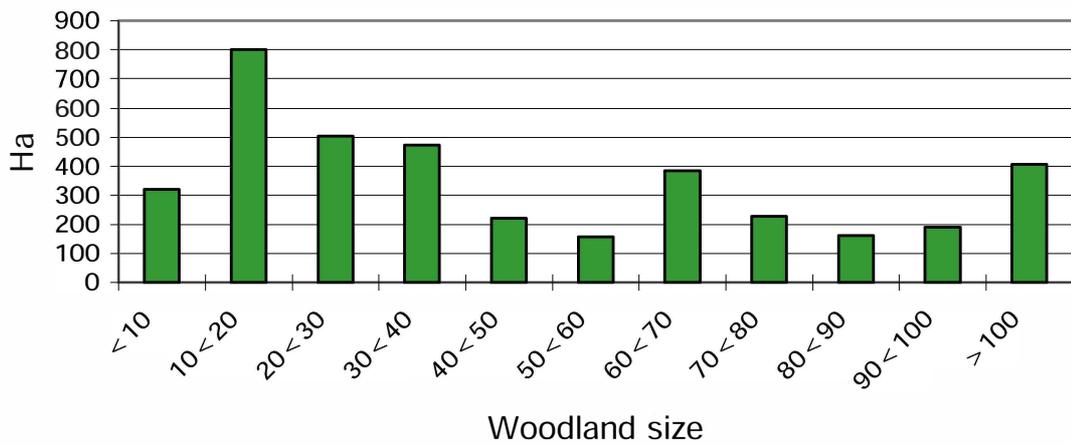
Much of this HLC type is in small woodlands (12% less than 10 hectares), often on steep slopes (56% are to be found on steep cloughs and slopes). Ancient woodland in particular

tends to survive on the steep slopes of rivers and at the sides of streams.

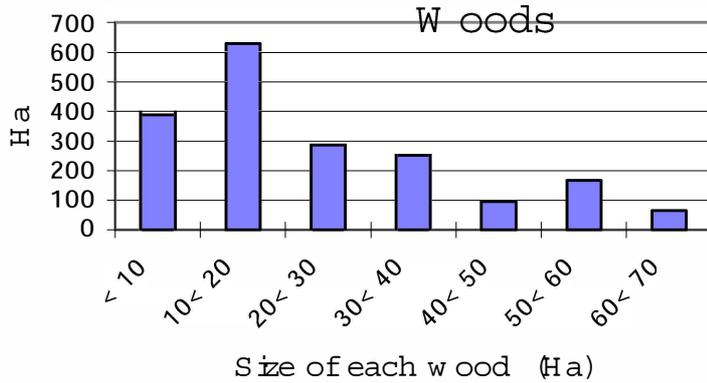
Size Distribution of Ancient and Post Medieval Woodland in Lancashire



Size distribution of Ancient Woodlands in Lancashire



Size Distribution of Post-Medieval



Lancashire Woodlands
 Showing the distribution of Ancient Woodland and Post-Medieval woodland



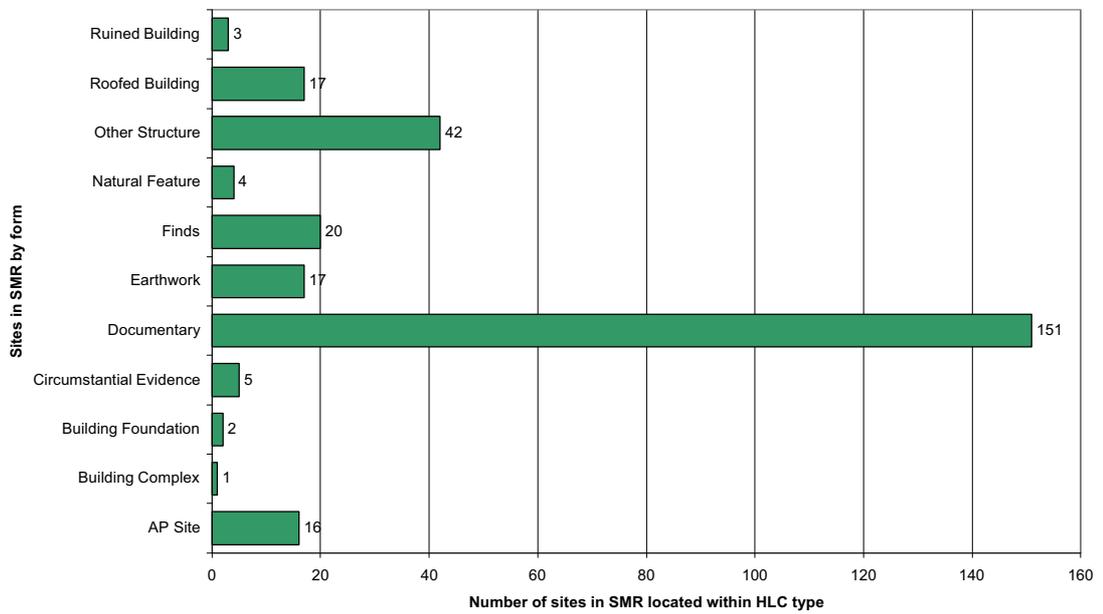
The tables above illustrate that Ancient Woodland in Lancashire includes some large areas of woodland over 100 hectares in extent. Post-Medieval Woodland on the other hand tends to be smaller, with a maximum size less than 70 hectares. Both size distributions show a peak of woodlands between 10 and 20 hectares in extent.

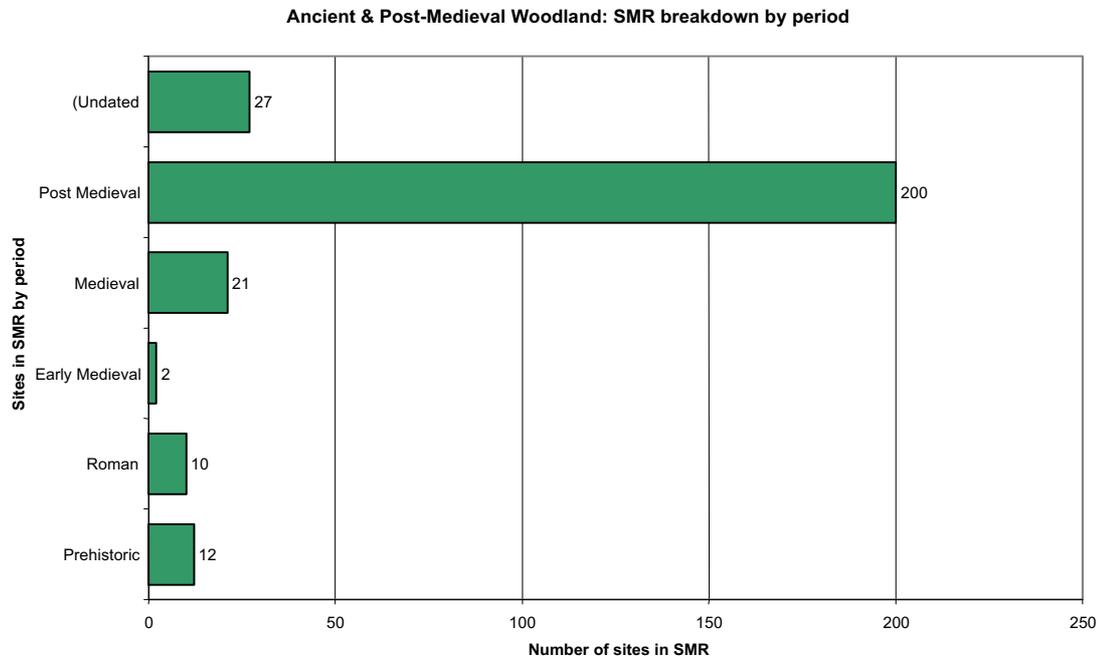
15.1.2 Typical historical and archaeological components: Past and present management will determine the type's composition and associated flora and fauna. There may be coppice and pollarded trees indicating such earlier (or continuing) management regimes. There may also be wood boundaries and other ditch and bank boundaries for coppice compartments, saw-pits, drainage grips and evidence for charcoal production. In addition, although rarely so, Ancient and Post-Medieval Woodland may contain evidence of earlier activity carried out prior to the establishment of the wood. Other components can include

parkland wood features (seating, icehouses, kennels, formal or ornamental pathways, bridges), garden features, tracks and roads, watercourses and ponds.

| TYPE1 | Tot. Type1 in county | Tot. Type1 in APMW | Ha./site in APMW | % of Type1 in APMW |
|----------------------|----------------------|--------------------|------------------|--------------------|
| Total SMR sites | 13902 | 278 | 22 | 2% |
| Quarry | 776 | 35 | 174 | 5% |
| Bridge | 89 | 9 | 678 | 10% |
| Lime Kiln | 194 | 9 | 678 | 5% |
| Building | 150 | 7 | 872 | 5% |
| Footbridge | 53 | 7 | 872 | 13% |
| Cross | 242 | 6 | 1018 | 2% |
| Hall | 102 | 6 | 1018 | 6% |
| House:domestic | 534 | 6 | 1018 | 1% |
| Pond | 112 | 6 | 1018 | 5% |
| Corn Mill | 43 | 5 | 1221 | 12% |
| Weir | 47 | 5 | 1221 | 11% |
| Boundary Stone | 117 | 4 | 1527 | 3% |
| Farmhouse | 205 | 4 | 1527 | 2% |
| Park | 20 | 4 | 1527 | 20% |
| Promontory fort? | 7 | 4 | 1527 | 57% |
| Watermill | 61 | 4 | 1527 | 7% |
| Barn | 104 | 3 | 2035 | 3% |
| Blacksmiths workshop | 122 | 3 | 2035 | 2% |
| Bobbin Mill | 13 | 3 | 2035 | 23% |
| Canal | 73 | 3 | 2035 | 4% |

Ancient & Post-Medieval Woodland: SMR breakdown by form





15.1.3 Similar types and distinguishing criteria: The only type which is similar is **Modern Woodland**. This type is identified by analysis of the 1st edition six inch O.S. mapping.

15.1.4 Rarity: **Ancient & Post-Medieval Woodland** HLC type accounts for 2% of the Lancashire area.

15.2 ENHANCING AND SAFEGUARDING THE TYPE

- *Conserve* historical woodland features and relic landscape attributes. Woodland management plans should aim to conserve historic woodland management features, such as woodbanks, pollards and saw-pits, and consider the potential of enhancing such attributes for educational, recreational and tourism benefit. These and any relic landscape features, such as derelict mills, ponds and leats that may be located within the steep sided wooded valleys, should be identified and assessed early in proposals for change.
- *Ensure* that the historic dimension is fully integrated in subregional and local woodland management strategies (such as ELWOOD – East Lancashire Woodland) and within the Forestry Commission’s Forest District Conservation Plan and Forest Enterprise’s Forest Design Plan.

- *Encourage* enhanced appreciation of the historical origins and the ecological value of these woodlands. This likely to lead to sensitive management of them from archaeological and ecological perspectives.
- *Seek* appropriate advice for parkland woods containing non-native and exotic species. These require active management to maintain and sustain their historic character.
- Changes in land use regime, for instance a change to economically-led forestry, may perhaps be the biggest threat in those woodlands not on steep slopes. In these instances protection may be usefully tied to the holistic management of the woodland and associated landscape where applicable.
- Use of woodland and other grants may be applicable to safeguard particular elements – these include the Woodland Grant Scheme and Farm Woodland Premium Scheme.

15.3 KEY SOURCES

Beswick, P., and Rotherham, I. D. (eds.), 1993, 'Ancient Woodlands: their archaeology and ecology – a coincidence of interest', *Landscape Archaeology and Ecology*, 1

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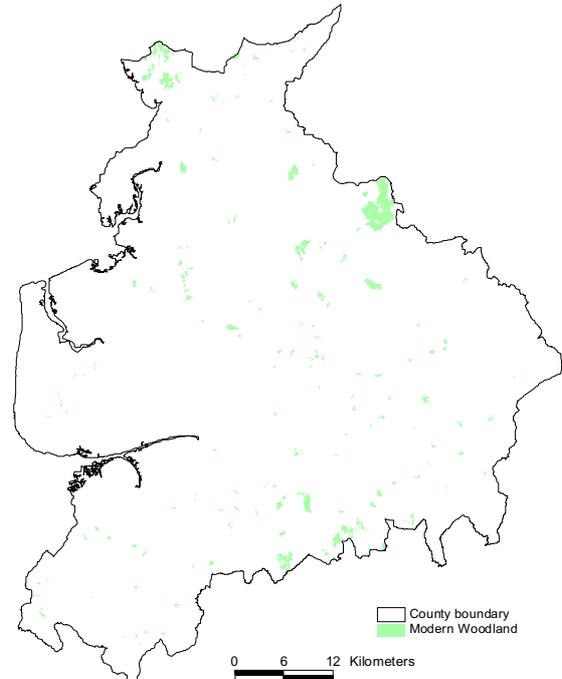
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16. MODERN WOODLAND

16.1 GENERAL DESCRIPTION

16.1.1 Historical and archaeological background and principal processes:

The type includes planted woodland dating from some time since the 1st edition O.S. mapping of the mid-19th century. Much of this woodland comprises recent coniferous plantations on former moorland or moorland fringe. This accounts for most of the larger blocks of woodland, whilst Gisburn Forest alone accounts for 25% of the type. The modern woodland around Silverdale accounts for another 12%. Some of the latter is mixed woodland with an apparently Ancient Woodland-like appearance and may be on the site of earlier, genuinely ancient woodland. There are two other areas where blocks of woodland have considerable impact on the landscape. These are around the reservoirs at Turton, and the planting at Lever Park. The plantations at Grindleton, Beatrix Fell and Thrushgill are all over 100 hectares on former moorland and also have considerable local impact.



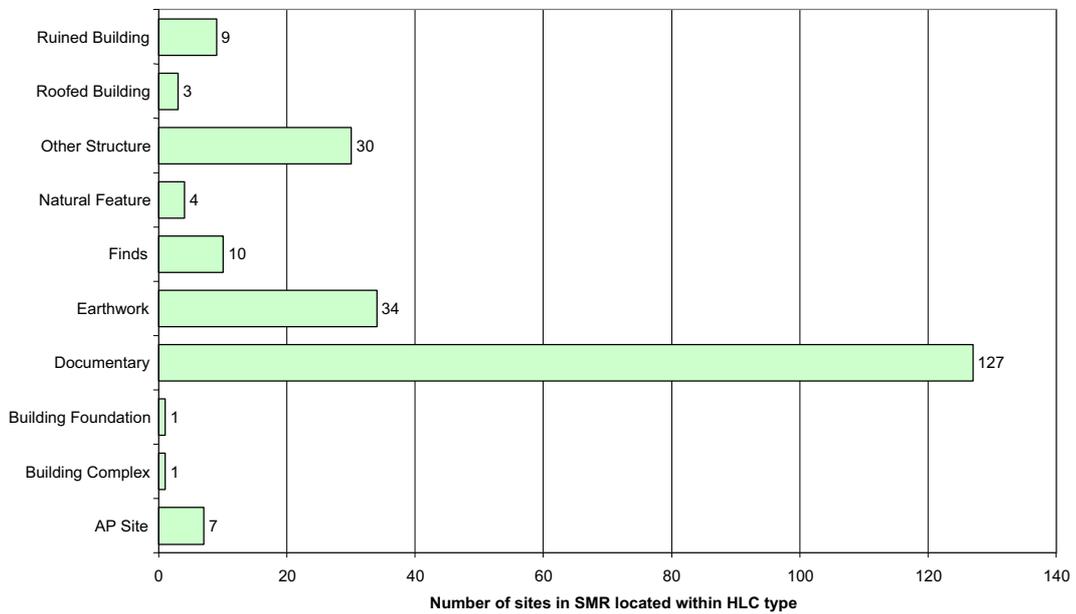
In former wetland areas of the Fylde and South West Lancashire most of the few woodlands that currently exist were too small to be mapped as types within the remit of the project (and tend instead to be attributes of other types) but those that have been included tend to be windbreaks, i.e. long linear plantations, or rectangular copses.

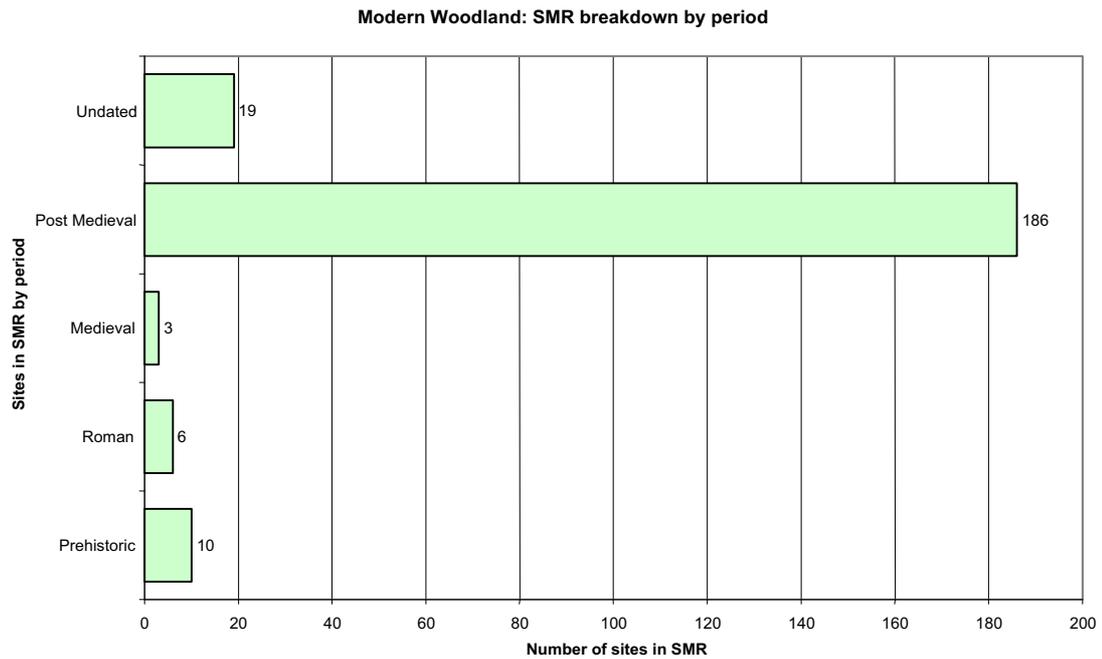
Five areas of ornamental planting associated with parkland have been identified, including the sizeable woodland of Lever Park. The other four (Hynning Hall, Storrs Hall, Wyresdale Park and Winmarleigh College) are much smaller woods.

16.1.2 Typical historical and archaeological components: **Modern Woodland** has few distinguishing archaeological components beyond the plantation itself. Of these perhaps the experimental woodlands planted in the Grane Valley, near Haslingden, to monitor the effects of pollution have the most intrinsic historical value. Other components may be relic landscape features deriving from earlier periods such as tracks, roads, field and property boundaries, and in the case of the Gisburn Forest area, buildings and farmsteads of a farming community.

| TYPE1 | Tot. Type1 in county | Tot. Type 1 in MW | Ha./site in MW | % of Type1 in MW |
|----------------------|----------------------|-------------------|----------------|------------------|
| Total SMR sites | 13902 | 226 | 21 | 2% |
| Quarry | 776 | 27 | 179 | 3% |
| Farmstead | 137 | 17 | 284 | 12% |
| Lime Kiln | 194 | 16 | 301 | 8% |
| Sandstone Quarry | 258 | 10 | 482 | 4% |
| Barn | 104 | 6 | 804 | 6% |
| Building | 150 | 6 | 804 | 4% |
| Coal Workings | 46 | 5 | 965 | 11% |
| Colliery | 277 | 5 | 965 | 2% |
| Cave | 6 | 4 | 1206 | 67% |
| Earthwork | 117 | 4 | 1206 | 3% |
| Gravel Pit | 89 | 4 | 1206 | 4% |
| Water tank | 16 | 4 | 1206 | 25% |
| Boundary Stone | 117 | 3 | 1608 | 3% |
| Farmhouse | 205 | 3 | 1608 | 1% |
| House:domestic | 534 | 3 | 1608 | |
| Mill | 367 | 3 | 1608 | |
| School | 306 | 3 | 1608 | |
| Stone | 18 | 3 | 1608 | 17% |
| Blacksmiths workshop | 122 | 2 | 2412 | 2% |
| Cairn | 26 | 2 | 2412 | 8% |

Modern Woodland: SMR breakdown by form





16.1.3 Similar types and distinguishing criteria: The type is distinguished from the **Ancient and Post-Medieval Woodland** HLC type by its absence from the 1st edition O.S. 6" mapping. It is recognised by being included on the Forestry Commission's inventory of woodland (ArcView theme) and/or coloured green on the present day 1:25,000 O.S. mapping.

16.1.4 Rarity: **Modern Woodland** covers 1.5 % of Lancashire.

16.2 ENHANCING AND SAFEGUARDING THE TYPE

- *Conserve* historical woodland features and relic landscape attributes. Woodland management plans should aim to protect historic woodland management features, such as woodbanks, pollards and saw-pits, and consider the potential of enhancing such attributes for educational, recreational and tourism benefit. These and any relic landscape features, such as derelict mills, ponds and leats, should be identified and assessed early in proposals for change.
- *Integrate* the historic dimension in subregional and local woodland management strategies (such as ELWOOD – East Lancashire Woodland) and within the Forestry Commission's Forest District Conservation Plan and Forest Enterprise's Forest Design Plan.
- *Encourage* enhanced appreciation of the historical origins and the ecological value of these woodlands. This is more likely to lead to sensitive management of them from archaeological and ecological perspectives.
- *Integrate* the detailed evaluation of historic environmental assets into the development of woodland and scrub management plans.

- Seek appropriate advice for parkland woods containing non-native and exotic species. These require active management to maintain and sustain their historic character.
- Use of woodland and other grants may be applicable to safeguard particular elements – these include the Woodland Grant Scheme and Farm Woodland Premium Scheme.

16.3 KEY SOURCES

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17. WATER

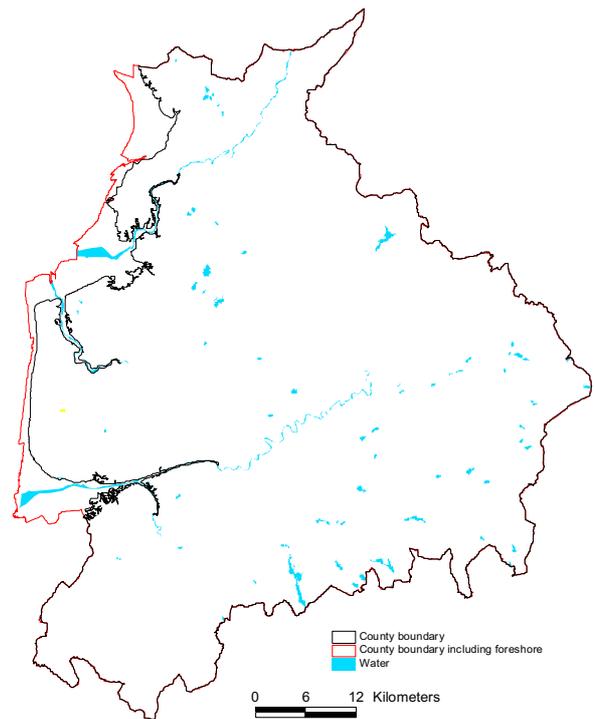
17.1 GENERAL DESCRIPTION

17.1.1 Historical and archaeological background and principal processes:

The type includes natural and man-made water bodies. The natural features are one natural lake (Hawes Water) and three rivers (Ribble, Lune and Wyre). The man-made features include reservoirs (56), flooded quarries (8), and ten man-made lakes/ponds of varying origins. Three of the latter are ornamental lakes, one a mill lodge, one a much-altered natural lake and the rest are associated with past industrial activities (quarrying and rock salt extraction). Most of the reservoirs are less than 20 hectares in size and are located in the south-east of the county, often on moorland or around its fringes. Stocks reservoir and the complex of Anglezarke, Yarrow and Rivington reservoirs are by far the largest freshwater bodies (other than rivers and canals) in Lancashire. Canals are not of sufficient size for inclusion within the project, the exception being canal basins, which fall within the **Communications** HLC type. Of the 74 man-made water features, just eleven pre-date the O.S. 1st edition mapping (nine reservoirs and the lakes of Marton Mere and Wyresdale). All the flooded quarries post-date c.1850.

Deserted upland farming landscapes associated with the construction and catchment areas of reservoirs, cleared of human occupation by the water companies in the late 19th and early 20th centuries such as Haslingden Grane, are a key feature of the water type. These landscapes encompass mainly

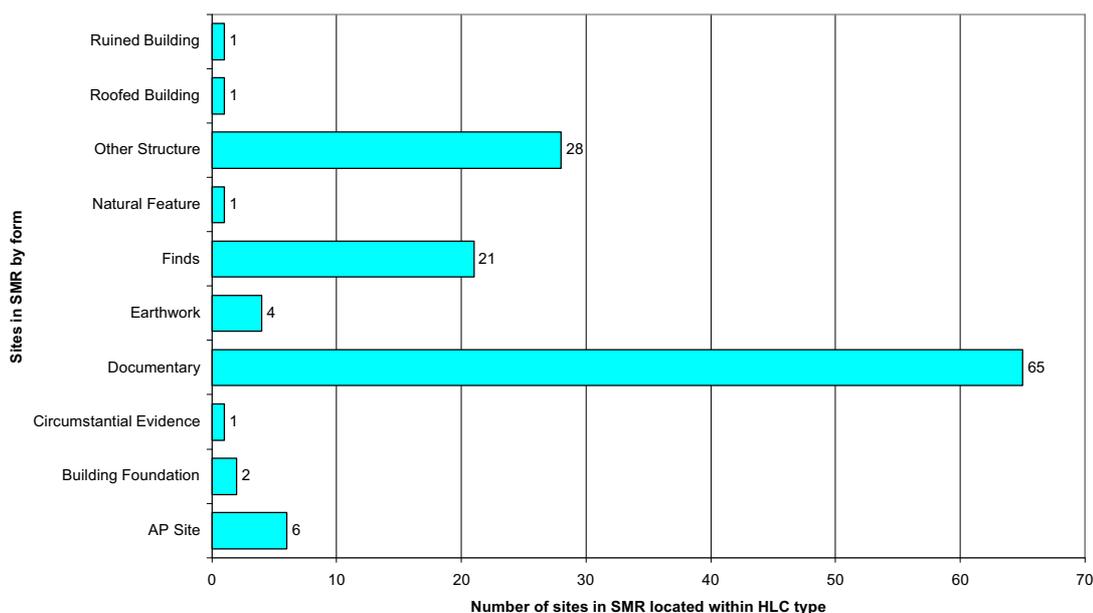
Moorland and **Reverted Moorland** historic landscape character types as well as **Modern Woodland**.

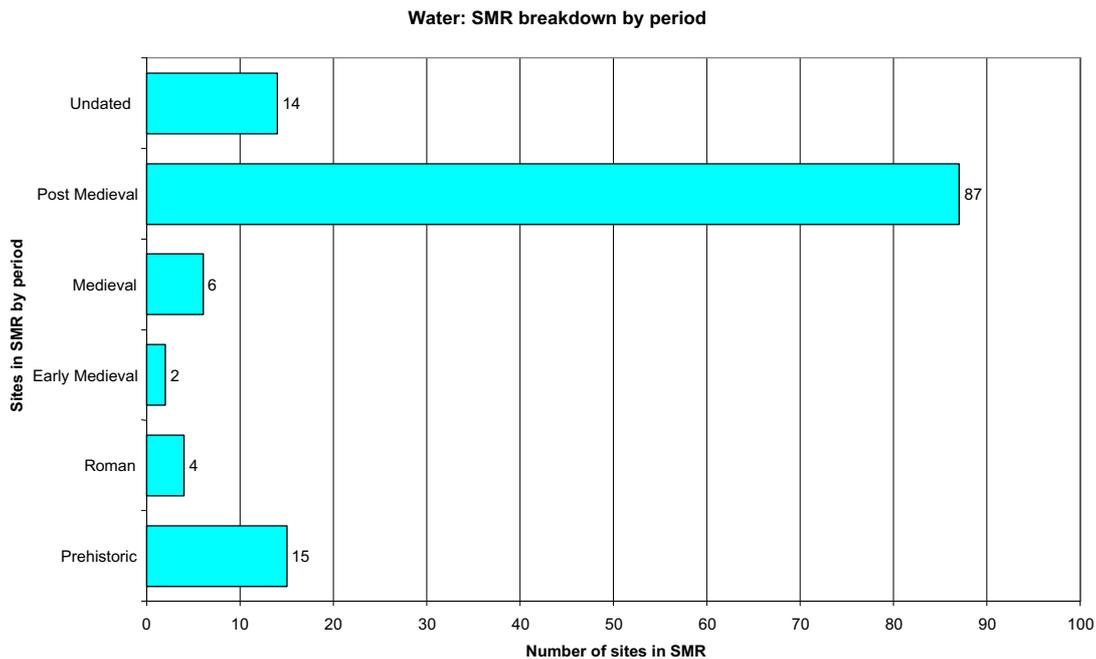


17.1.2 **Typical historical and archaeological components:** Visible components in the HLC type relate mainly to the man-made features and include bridges, levees, dams, weirs, jetties and quays, fishtraps, overflow leats, silt traps and waterwork buildings (reservoir towers, pumping stations and supervisors' accommodation). Invisible and relic archaeological features include land surfaces and evidence for occupation buried beneath alluvium, and structures and finds deposited within them by humans (boats, stray finds etc). On many occasions the waterlogged conditions provide for excellent organic preservation. The natural features may well include deposits that contain palaeoenvironmental information which could hold clues to past landscapes and human activity.

| TYPE1 | Tot. Type1 in county | Tot. Type1 in W | Ha./site in W | % of Type1 tot. in W |
|-----------------------------|----------------------|-----------------|---------------|----------------------|
| Total SMR sites | 13902 | 130 | 30 | |
| Reservoir | 87 | 15 | 259 | 17% |
| Bridge | 89 | 8 | 486 | 9% |
| Quarry | 776 | 5 | 778 | |
| Stone:axe hammer,perforated | 29 | 5 | | 17% |
| House:domestic | 534 | 4 | 973 | |
| Mill | 367 | 4 | 973 | 1% |
| Boat House | 8 | 3 | 1297 | 38% |
| Cotton Mill | 394 | 3 | 1297 | |
| Dam | 15 | 3 | 1297 | 20% |
| Ferry | 12 | 3 | 1297 | 25% |
| Fishery | 6 | 3 | 1297 | 50% |
| Ford | 21 | 3 | 1297 | 14% |
| Lime Kiln | 194 | 3 | 1297 | 2% |
| Wall | 61 | 3 | 1297 | 5% |
| Farmstead | 137 | 2 | 1945 | 1% |
| Organic:wood dugout canoe | 9 | 2 | 1945 | 22% |
| Printing Works | 27 | 2 | 1945 | 7% |
| Road | 179 | 2 | 1945 | 1% |
| Sluice | 5 | 2 | 1945 | 40% |
| Stone:sandstone sculpture | 4 | 2 | 1945 | 50% |

Water: SMR breakdown by form





17.1.3 Similar types and distinguishing criteria: There are no similar types, but there is considerable interaction with the **Enclosure** subtype related to watermeadow and meadow grazing (mg). The type has been identified using the current 1:25,000 mapping symbol for water only.

17.1.4 Rarity: **Water** covers 1% of Lancashire.

17.2 ENHANCING AND SAFEGUARDING THE TYPE

- Special consideration needs to be paid to water-edge features, be they on riverbanks or on the side of man-made water bodies. These areas are the most sensitive to change (through erosion or through exposure during periods of drought or flood) and contain the greatest concentration of features of historic or archaeological interest. Improved management through river corridor survey, establishment of good practise guidance and monitoring should be maintained and enhanced in partnership with the Countryside Agency, the Environment Agency, English Nature and North West Water.
- Improve management visibility. The type has considerable potential for buried and hidden archaeological remains, either within pond or reservoir sediments, under expanses of water (submerged buildings) or within and below alluvial deposits. Awareness raising with the appropriate authorities (particularly of the historic dimension of the Water Act 1973), the maintenance of high water levels and alluvial deposits are all considered to be priority measures for implementation.
- For projected new schemes that would fall into this category, such as reservoir construction, early consultation with the archaeological curator for Lancashire will be required to formulate a mitigation strategy.

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