15 TIME DEPTH AND CHANGE

One of the main aims of historic landscape characterisation is "to understand the past, the trajectory of change and/or continuity, which has brought the environment to the state we have inherited and which provides the springboard for future change" (Grenville and Fairclough 2005, 3). This chapter looks at time depth and attempts to measure the rarity, change and susceptibility of HLC types. The most readily measured period of change is the last 150 years, from the publication of the first edition Ordnance Survey map in the 1860s to the present day and, although for reasons of time not all OS map editions have been used in this project, it would be possible to refine the measurement of change by comparing intermediate editions for particular case studies. However, it has been possible to gain a greater time depth for fieldscapes as certain characteristics are indicative of particular processes of enclosure which in turn can be suggestive of a date as far back as the 16th or 17th centuries. For other entry level types it has not been possible to extend their time depth back much beyond the 19th century, although ancient woodland acknowledges continuous woodland over since at least the beginning of the 17th century. By using these details a series of maps has been produced which show time depth and demonstrate how the character of the county's landscape has changed. Some of these changes have already been described in previous chapters on individual landscape types but this chapter looks at the HLC types together.

15.1 Time Depth

Time depth is the visible evidence in today's landscape of continuity and change over long periods of time. The map below shows both continuity and change: from the small number of fields which may have remained unchanged since perhaps medieval times, to new industrial and urban landscapes of the 20th and 21st centuries.

The character of over 40% of Northumberland's landscape is a product of the 20th and 21st centuries. Most of this change has occurred in two main areas – the south-east of the county from Amble to the county boundary with North Tyneside, and in the western uplands and Sandstone Hills; change has been least marked in the southern, central and northern lowlands. Some of the places where modern change has occurred may seem predictable, such as the urban and industrial areas of South East Northumberland, but others may be more surprising, for example the Cheviot Hills and border areas with Scotland where Kielder Reservoir has flooded the upper reaches of the North Tyne valley, once open moorland is now enclosed or changed from heather to rough grassland, and large swathes of land are now planted with coniferous plantations, changing the character of these once wide and open spaces. Elsewhere many smaller plantations, shelter belts and coverts have been established and nearly all are dominated by alien coniferous species. The spread of urban areas from a historic core in modern times has been most dramatic in the south-east of the county and along the Tyne valley where the character of towns like Hexham, Prudhoe, Ashington, Morpeth and Blyth have changed as housing, schools and hospitals have been built together with new industrial and retail sites on their periphery. Other large scale industries, like opencast mining, have made an impact in the countryside – both whilst in operation and afterwards as fields have been restored in new regular patterns with little or no regard for the previous character or have been designed as nature reserves or country parks. The rise of recreational landscapes in the 20th century has also seen the creation of golf courses, holiday parks, marinas and heritage sites.

Other processes have brought about change in the agricultural landscape as fields have been reorganised and boundaries lost to create larger fields more suited to modern farming methods, and the moorland edge has retreated further as new fields are created, for example along the Sandstone Hills. The network of road and rail is a mix of modern and 19th century or older routes, with parts of the road network able to claim its roots back to Roman times. New roads have been built to service the expanding settlement and industry in the south-east of the county and elsewhere the main A1 and A69 trunk roads have been realigned in places to bypass historic settlements or widened to cope with ever increasing volumes of traffic. In contrast, the rail network has contracted since its heyday at the turn of the 19th and 20th

centuries with the East Coast and Newcastle to Carlisle lines almost the only survivors and most rural branch lines now disused relics of a bygone age. The impact of modern military establishments is small and although the army has an extensive training area at Otterburn, its character remains largely as upland rough ground with military infrastructure being only a small intrusion on the landscape. Elsewhere, military airfields have come and gone within the 20th century and although only a handful are still in (recreational) use remnants of runways and peripheral buildings still survive in places.

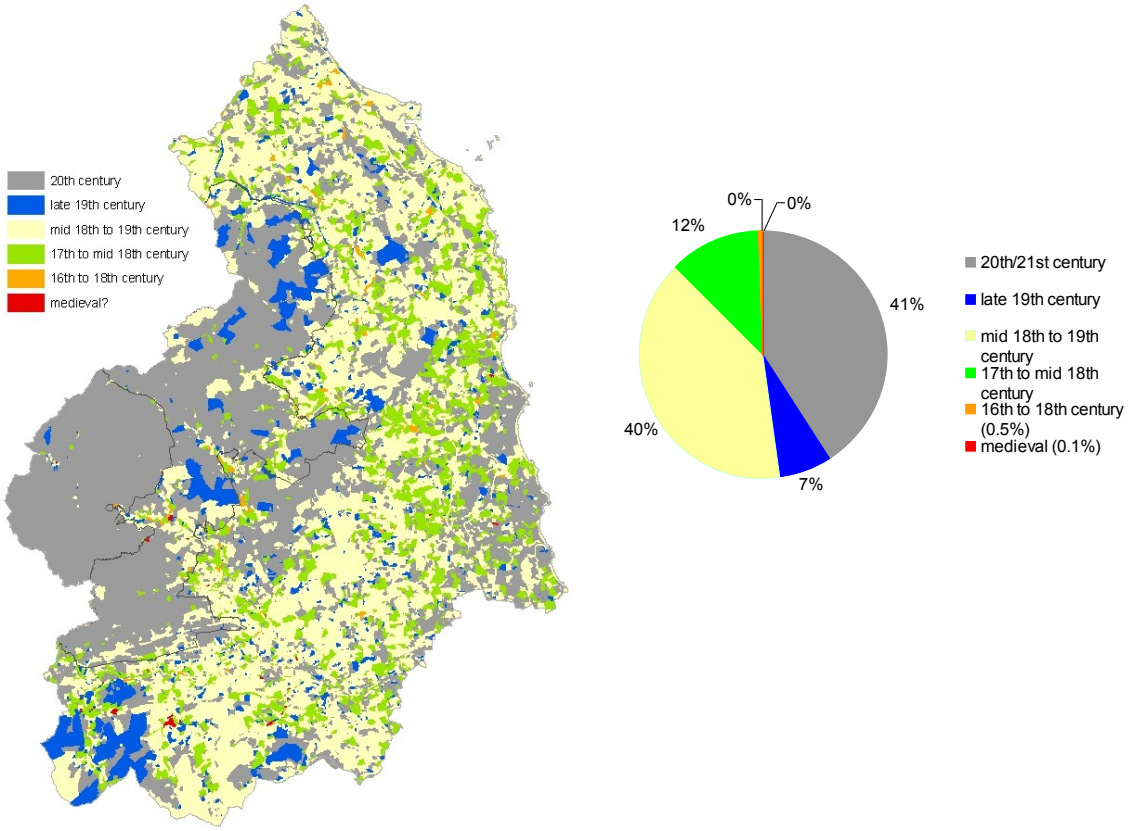

Figure 53: Time depth in the Northumberland landscape and pie chart showing proportion of HLC types by date of origin.

In contrast, there are comparatively few elements in today's landscape that were formed in the late 19th century and they amount to only 7% of the county. Most change occurred as late enclosure of moorland and reorganisation of fields; new woodland is characterised by small commercial plantations, shelter belts and coverts; settlements in the south-east of the county and along the Tyne valley grew only slightly and were often associated with the arrival of the railways or the emergence of coal mines and their associated workforce; and communications were improved as railway branch lines were built deep into the Northumberland countryside and survive as relic features in today's landscape. The increasing urban areas of Tyneside also called for the construction of reservoirs in the Northumberland countryside and the recreational side of life also developed with the county's first golf courses at Alnmouth and Warkworth.

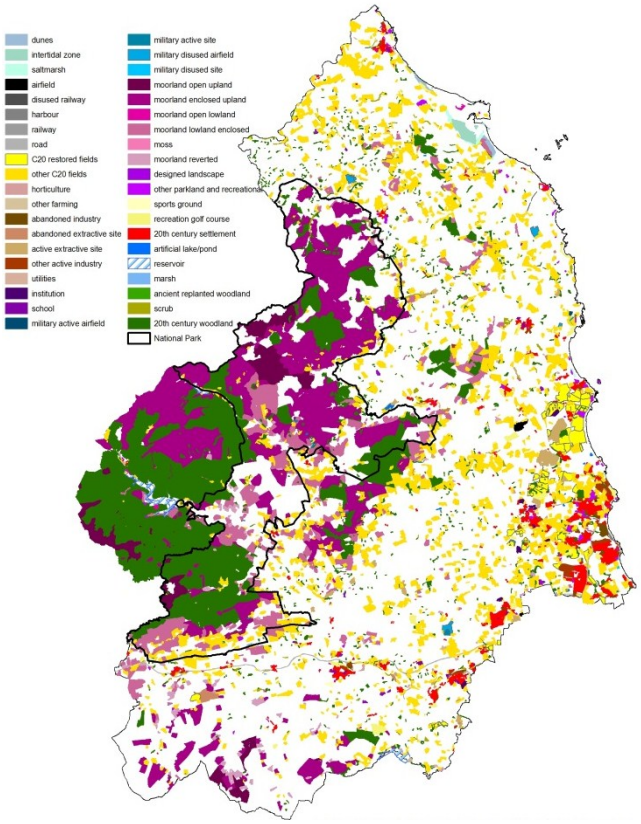

Figure 54: 20th and 21st century historic landscape character types.

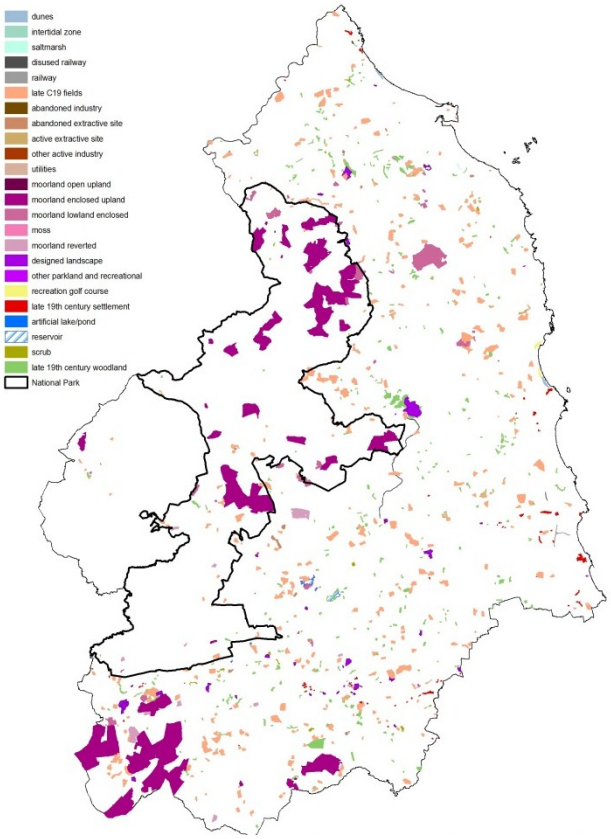

Figure 55: Surviving late 19th century historic landscape character types.

While modern times have changed the character of large parts of the county, more than half of Northumberland preserves the historic landscape character of the post-medieval period, showing continuity from the 17th, 18th and 19th centuries and in some small parts possibly even earlier. These are the oldest landscapes in the county and are those which can sometimes trace their origins back to medieval times. However, it would be wrong to assume that such landscapes are exactly as they were 200, 300 or even 400 years ago as this apparent stability does not take account of all the elements that contribute to the look and feel of a place on the ground today, for instance, traffic noise, pylons and overhead wires, individual trees or the composition or loss of a few field boundaries.

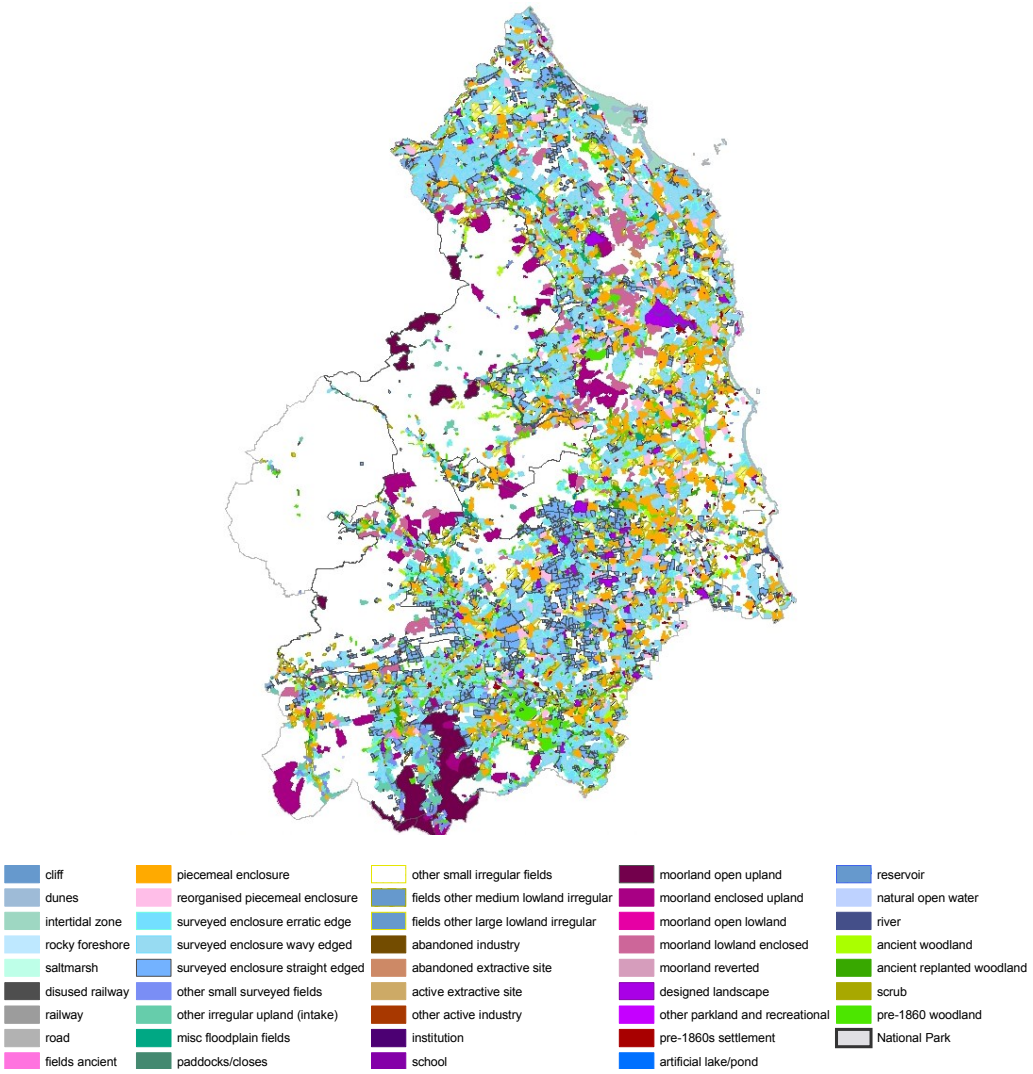

Figure 56: Surviving pre-1860 historic landscape character types.

The map above shows that most of the elements in today's lowland landscapes existed by the 1860s. Regular planned fields stand out as a major feature and they reflect the importance of agricultural improvement which was taken up by many landowners across the county from the mid 18th century onwards. This was not the first wave of enclosure, however, as it followed a process which had begun in the 16th and 17th centuries where the existence of large estates had already enabled landowners to enclose and reorganise lowland holdings, to the extent that enclosure was essentially complete by 1750 (Lake and Edwards 2006, 7). Enclosure in the 18th and 19th centuries was sometimes laid out entirely anew, some fields may have been fitted into a pre-existing framework of the open fields, and others only slightly reorganised from the earlier round of enclosure by agreement. Remnants of the open fields can be seen in the shapes and patterns of boundaries as well as through the survival of ridge and furrow earthworks. Ancient enclosure (medieval) has been difficult to identify and seems very rare

and so was perhaps not a common element in the Northumberland landscape. The upland landscapes have very few areas that survive unchanged from this time and they are mostly large areas of open moorland in the North Pennines and to a lesser degree in the Sandstone Hills. Woodland from this period includes the beginning of large-scale plantations such as Dilston, Thrunton and Broomleyfell (over 300ha), but most are much smaller and stand alongside coverts and shelterbelts with the added time depth of ancient woodland found along many of the county's river valleys.

15.2 Direction of change

If time depth helps to show the continuity and stability of historic landscape types, then looking at where and when change has occurred and attempting to quantify it helps to understand how the landscape is evolving and where the greatest threats might lie. An exercise to measure change from the mid 19th century to the present day was carried out to give an indication of those HLC types which have decreased most rapidly, those which are stable and those which are increasing or new in the 20th/21st century. This was carried out without the advantage of any intermediate dates, but it is acknowledged that a more detailed picture could be gained if data was available on the area of each HLC type at 50-year or 25-year intervals. However, with the available information it is possible to get an indication of the direction of change. This was achieved by comparing the area of each HLC type in the mid 19th century and 2006/7 using evidence from current mapping and the first edition Ordnance Survey map. The difference in area was converted to a percentage and the scale of gain and loss defined in the following ranges: decreasing critically (>50% loss), decreasing rapidly (21-49% loss), decreasing slowly (1-20% loss), stable, increasing slowly (1-20% gain), increasing rapidly (21-69% gain), increasing significantly (>70% gain), and new (ie not present in c.1860). For a detailed table of HLC types and the measure of change see Appendix 4.

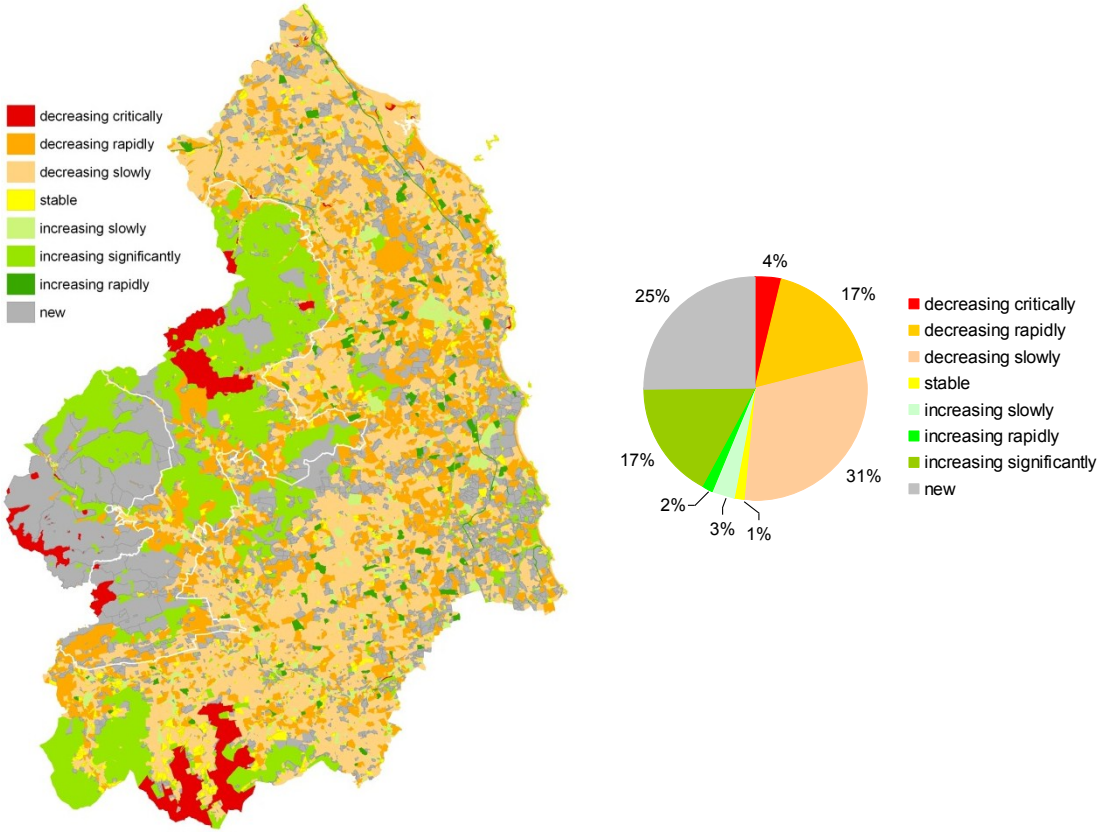

Figure 57: HLC types mapped according to their direction of change with pie chart showing the proportions of HLC types by change categories.

The map above shows HLC type according to their direction of change since the 1860s. A quarter of HLC types are new and were not present in the mid-19th century, for example 20th century woodland, settlement expansion and industry. Only a few types have remained stable, such as the rocky foreshore, cliffs and intake. In contrast, over half of all types have decreased over the last 150 years, some more drastically than others: open low moorland has decreased by 98% and open upland moorland by 85%; others like piecemeal enclosure (42% drop) and enclosed lowland moorland (25% drop) have decreased rapidly; and others have only decreased slowly for example surveyed enclosure (12-20% drop) and pre-1860 woodland (8% drop). The HLC types that have increased most significantly are industrial types, reservoirs and institutions; those which have increased rapidly include reorganised piecemeal enclosure; and those which have only increased slowly include scrub, some designed landscapes and ancient replanted woodland.

15.3 Rarity

Rarity has been calculated to help give a measure of how abundant or otherwise each HLC type is. It has been calculated by expressing the total area of each HLC type as a percentage of the county and the methodology is described in detail in Appendix 4. The map below shows how large parts of the county are covered by HLC types which are frequent or common; together they account for 90% of the county but actually represent only 11% of HLC types, including 20th century settlement, designed landscapes, surveyed enclosure and open moorland. The rarest HLC types account for less than 3% of the county but represent 37% of HLC types; they include marsh, cliff, horticulture, utilities and open moorland.

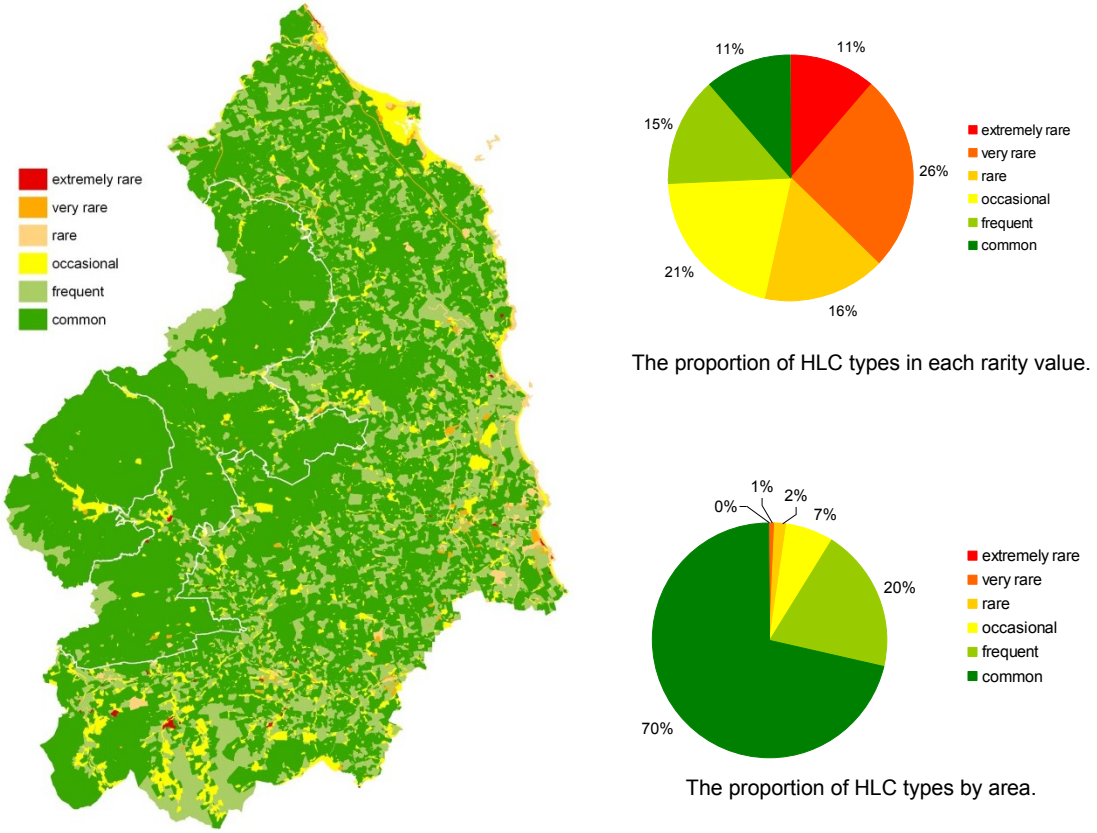

Figure 58: Rarity of HLC types.

15.4 Susceptibility

Although rarity and direction of change give an indication of how common HLC types are and how they are changing, they do not necessarily give an idea of how vulnerable those types are to future change. By combining rarity and direction of change together an attempt was made to produce a scale of susceptibility to change (see Appendix 4 for methodology). The map below is the result of these combined values plotted in broad bands – high, medium, low. They are based on the assumption that for example, a type that is rare and decreasing rapidly

will be highly susceptible to change, whereas one that is very rare and increasing will have a medium rating. The distribution of types according to this method shows areas across the uplands and lowlands that are highly susceptible to change, such as dunes, open moorland and piecemeal enclosure, and they account for 19% of the county's land area. Those with a low rating are mainly 20th century types such as plantations, industry, new fields and military sites, and account for 41% of the county.

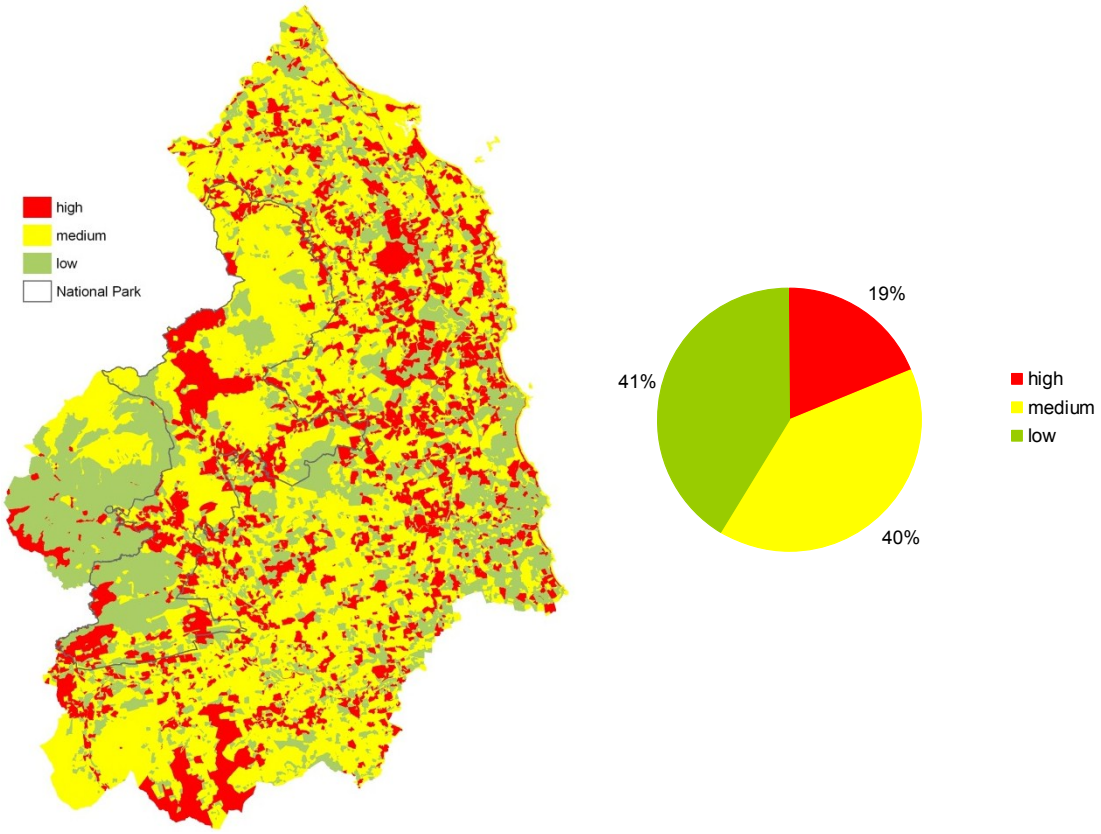

Figure 59: Susceptibility of HLC types and pie chart showing proportion of high, medium and low ratings.

15.5 Mid-19th Century Time Slice

As well as time depth, the historic character of the county in the mid 19th century can be depicted by plotting the HLC types present on the first edition Ordnance Survey map of the 1860s. When compared with the current HLC types (see figure 60) the most striking difference is the amount of open moorland and lowland moorland in areas which today have been over planted with Kielder Forest, enclosed, or improved in the late 19th or 20th centuries. Large areas of piecemeal enclosure (orange) have been lost in the south-east of the county to urban expansion and mineral extraction.

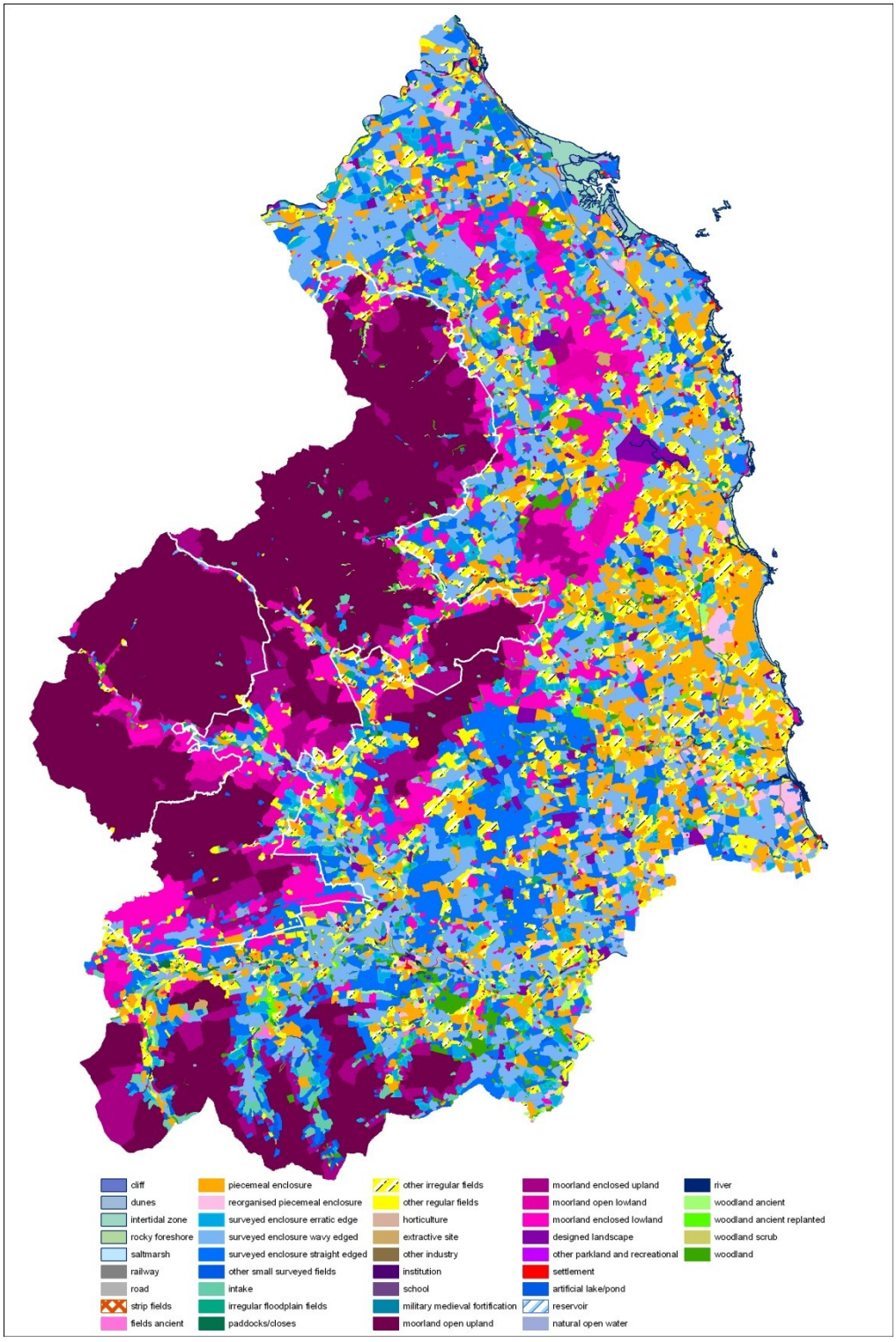

Figure 60: Mid-19th century time slice of Northumberland.