

**A Report Prepared for  
High Weald AONB**

**Historic Farm Complexes in Current Socio-  
Economic Context: High Weald**

**October 2007**

**Department of Town and Regional Planning  
University of Sheffield**

## SUMMARY

- 1 This document reports on various aspects of settlement, development and property utilization in the High Weald AONB. It rests principally on a study undertaken for English Heritage by the University of Sheffield (Bibby and Brindley, 2006a) considering the feasibility of examining the present-day economic and social role of historic farm buildings. The present report abstracts results from the English Heritage study, but adds supplementary material concerned with engagement in business activity, service endowment and access to services.
- 2 Just over half of present day addresses associated with historic farm property are in residential use (52%). Where this is not the case, property has tended to remain in agricultural use (40%). The extent to which historic farm property has been put to non-residential use outside the agricultural sector is extremely limited (less than 8%). Moreover, the occupiers overwhelmingly remain in the small business sector.
- 3 The limited range of non-residential uses is important. As noted in the English Heritage study, this draws attention to the limited success of planning policies designed to find new employment uses for redundant agricultural buildings and avoid residential conversion. Given the intensity of demand for residential conversions, evidenced by the findings of this study with respect to property prices, this tendency is perhaps inevitable.
- 4 The English Heritage study stressed that as dwellings, historic farm property is highly prized. Over the period since 2000, the prices secured for dwellings associated with historic features have been substantially above those of other property within a 10 kilometre radius. It emphasized that within the High Weald, historic farm property appears to provide homes for an economic elite. Analysis of the home addresses of directors of companies with turnovers of more than £1.5 million shows that across the High Weald AONB there are in the order of 38 such directorships for every 100 households.
- 5 Work undertaken since completion of the English Heritage report underscores the overall conclusions with regard to affluence and enterprise. It also draws attention to the distinction between the extent of participation in substantial companies by residents of historic farm property around Tunbridge Wells and Crowborough, and a high level of engagement in smaller scale enterprise further south and east. It highlights a range of businesses taking advantage of environmental assets, and in which historic farm property may play a role as a (predominantly) residential hub. These distinct forms of enterprise are of great importance; the former because of its contribution to income of the area and to the capacity to conserve historic farm property, and the latter also because of its role in reproducing a particular type of rural landscape.

## 1. INTRODUCTION

- 1.1 This document reports on a series of investigations concerning the current use of historic farm property in the High Weald AONB and related matters. Much that is reported here is drawn from an investigation of a broader area undertaken for English Heritage by the University of Sheffield (Bibby and Brindley, 2006a). That study was designed to consider the feasibility of examining the present-day economic and social role of historic farmsteads and their buildings. Both pieces of work draw on a range of socio-economic data from Census, postal and other sources and use grid-based GIS techniques to explore contexts at a range of geographic scales. The present study addresses a slightly broader group of topics including service endowment of settlements, residents' access to services, and examines economic linkages in more detail.
- 1.2 The English Heritage study was motivated by that organization's long term concern not only to understand historic buildings in the context of their traditional landscape setting, but also to understand their relation to present social and economic conditions as these are critical to their survival chances. All historic farmsteads shown on First or Second Edition Ordnance Survey (OS) maps in an area including the High Weald AONB were recorded in GIS. The data assembled included the name of each farm and its grid reference, the farmstead type (plan form), the earliest date evidence of farmstead (from map or historic building record) and survival (1st or 2nd Edition OS against latest data set).
- 1.3 At the core of the English Heritage study was a computational matching exercise which built linkages between the historic farm building data and current postal addresses with their associated full postcodes. This in turn allowed further linkages to be made, drawing in information about property prices, non-residential occupiers, and the character of substantial business occupiers. The matching exercise is summarised in Section 2 of this document, while conclusions drawn about current use are set out in Section 3.
- 1.4 The original work for English Heritage drew attention to the tendency for new uses of historic farm property to be overwhelmingly residential. Further work has been undertaken for this study examining the extent and character of business associated with historic farm property in predominantly residential use. The methods and findings of this work are discussed in Section 3.
- 1.5 This additional work – while accepting that conversion of historic farm property is predominantly to residential use – points to a wide range of home-based business activity and a high level of enterprise within the AONB. This work has been further supplemented by analyses of business ties and journey to work which are summarised in Section 4. This enriches the conclusions of the previous report with respect of to understanding of current socio-economic context, by identifying different social groups with varying economic ties.
- 1.6 The English Heritage study also concerned itself with the extent of physical development in the immediate vicinity of historic farm buildings. Findings from this work pertinent to the High Weald are abstracted in Section 5 and supplemented by additional work concerned with physical development more generally (Bibby and Brindley, 2007) and with conversion of barn property (Bibby and Brindley, 2006b).

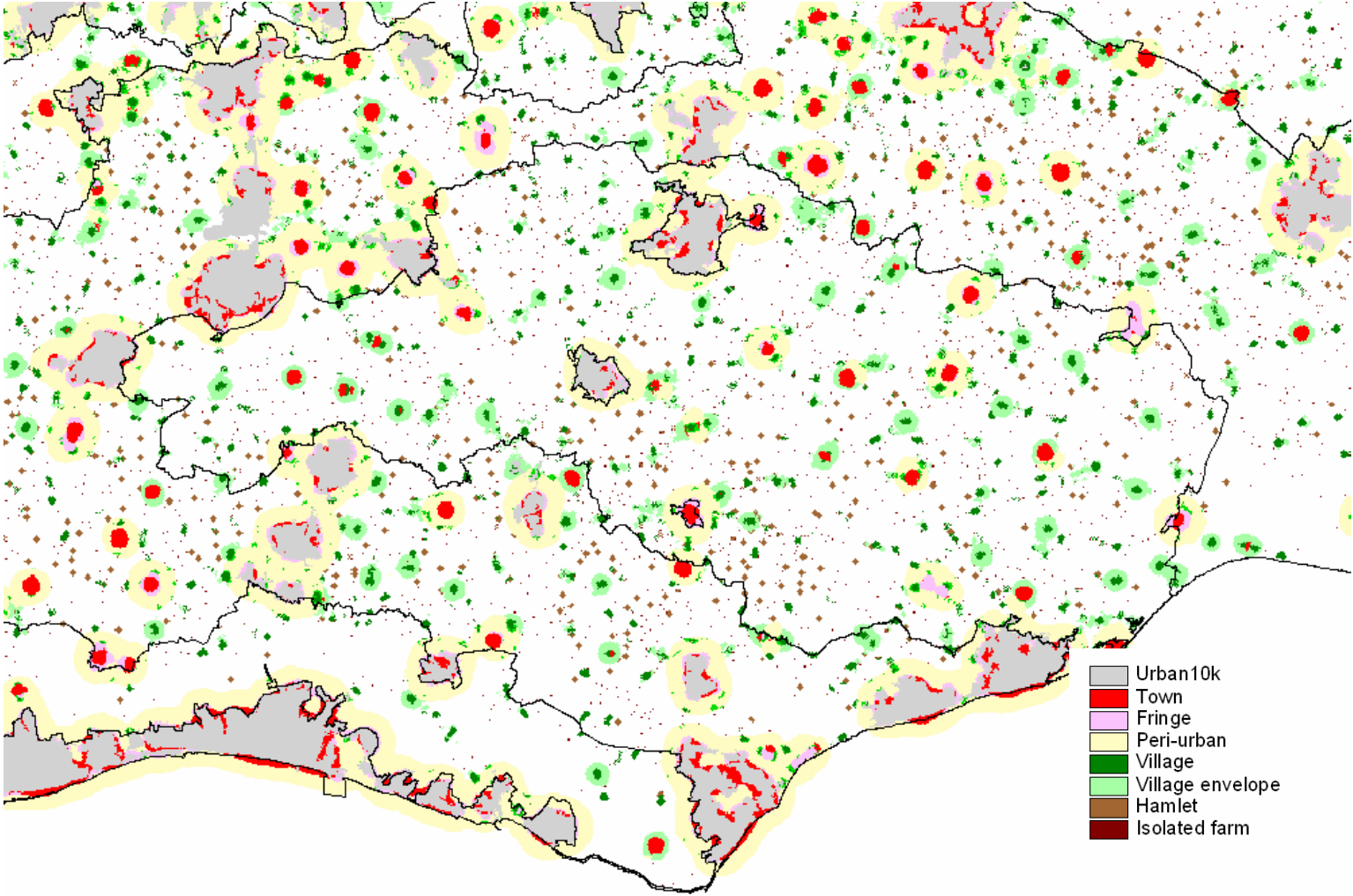
- 1.7 For the present study additional work was undertaken concerned with service endowment (Section 6) drawing on rateable hereditament data maintained by the Valuation Office Agency (VOA) and with residents' access to services (Section 7). Section 7 shows that access to services for High Weald residents is in general less good than for residents of England as a whole. Nevertheless, service access appears relatively good when account is taken of disadvantages implied by the dispersed settlement structure.
- 1.8 The series of results assembled here hopefully provide a body of evidence that may be of value to those in the High Weald concerned with aspects of planning policy. Given the particular settlement structure of the High Weald, with its unusually high proportion of dispersed settlement (see Table 1.1 and Figure 1.1), and particular socio-economic characteristics it may be of more general interest.
- 1.9 Much of the work underlying this report relies upon the use of relatively complex or unfamiliar methods. While it is important that such methods are understood, at least in outline, it would be inappropriate to discuss them in the main document. For this reason, a series of appendices is included explaining the methods in a little more detail. They refer to the use of grid based GIS (Appendix 1); the definition of settlement patterns and the relation to historic settlement patterns (Appendix 2); the methods used for linkage of historic and present day features (Appendix 3); and computational methods used to impute standard industrial classifications from occupier names (Appendix 4). Appendix 5 concerns itself with the relationship between farm types and their current uses, while Appendix 6 sketches an experimental typology of differing ruralities and Appendix 7 sets out the attributes of farmstead point data provided by English Heritage. (Appendices 1 to 7 are drawn almost entirely from the English Heritage study). Appendix 8 provides an overview of the methods used to derive information about business activity in properties principally in residential use and Appendix 9 describes the method used to calculate the expected work-travel distances discussed in Section 4. An example of an access to service distance list of the type used in the analyses of Section 7 is provided as Appendix 10.

Table 1.1: Breakdown of Settlement Types for Protected Areas, 2001 (% of households)

	<b>High Weald AONB</b>	<b>AONB Total</b>	<b>All Protected Areas Total</b>	<b>England</b>
<b>Urban 10k</b>	1.7	8.1	7.0	75.5
<b>Town</b>	15.7	18.9	19.6	9.1
<b>Fringe</b>	6.2	6.2	5.9	4.2
<b>Peri-urban</b>	7.7	6.7	6.7	5.1
<b>Village</b>	29.7	30.4	30.4	1.8
<b>Village envelope</b>	16.7	12.3	12.2	2.1
<b>Hamlet</b>	3.4	2.1	2.5	0.3
<b>Isolated farm</b>	11.3	7.9	8.3	0.9
<b>Other</b>	7.7	7.2	7.4	1.0
<b>Total</b>	100	100	100	100

For description of the classes please refer to Appendix 2

Figure 1.1: Settlement Types for the High Weald AONB



## 2. DISTRIBUTION AND SURVIVAL OF HISTORIC FARMSTEADS

- 2.1 This section reproduces information about the distribution and survival of historic farmsteads in the High Weald AONB from the English Heritage Study. Figures from that work have been redrawn to show distributions in the AONB at larger scale.
- 2.2 The distribution of historic farmstead features across the High Weald AONB is illustrated in Figures 2.1, and 2.2. The principal dataset on which they are based was provided by English Heritage and represents each farm complex as a single point. These data refer to 3,570 farm complexes within the High Weald AONB- representing a quarter of the features within the wider area which formed the subject of the English Heritage study.
- 2.3 Figures 2.1 and 2.2 represent these data in slightly different ways. Figure 2.1 treats the features as points, while in Figure 2.2 features have been assigned to a grid of hectare cells (ie 100 metres by 100 metres), and a moving window has been used to show how the average density of features varies from place-to-place. The value plotted in any particular cell in Figure 2.2 represents the average number of historic features over a 2km radius around that cell. Such generalization assists in the identification of underlying patterns at broader geographic scales (see Appendix One).
- 2.4 The approach taken to understanding survival and the present use of historic farmsteads in the work for English Heritage involved linking this information with other data from Land Use Change Statistics (LUCS), Population Census, Valuation Office Agency non-domestic rating register, and other sources. Linkage to LUCS depends entirely on the grid references provided by English Heritage. Links with Census data can be made on the basis of the grid references (to identify a Census Output Area), though in practice they have more usually been achieved through identification of the unit postcode for every historic farm feature. All other linkages discussed depend upon the unit postcode.
- 2.5 The reliability of the material presented here therefore depends upon the quality and completeness of the linkages between the historic farmstead data and unit postcodes. For the analysis of the present use of historic farm property, a critical requirement is that historic features are associated with current postally-addressable property, ie that they are 'matched,' by way of short-hand.
- 2.6 Initially, work on the English Heritage study required identification of all properties referenced by postcodes tied to grid references falling within 400 metres of historic farmstead points. All such properties were extracted from the Postcode Address File (PAF) including 2,640 such properties in the High Weald AONB. It must be stressed that these addresses do not necessarily refer to historic farm property, but are merely a set within which further searches have been undertaken. Within the AONB, there were, however, a further 930 historic farm points with no associated PAF addresses within 400 metres (26% of all historic farm points in the area). Some 575 of these 'unmatchable' records (16% of all historic farm features within the AONB) refer to surviving buildings (ie buildings which have been assigned survival codes by EH, and where the code is not 'LOST').

- 2.7 Three types of ‘matches’ should be distinguished (as discussed further in Appendix Three). The first type applies in circumstances where the name of a historic feature (such as ‘Nuthanger Farm’) persists today as a postally-addressable property. In this document, these are termed ‘**exact matches**’. In a second class of circumstance, the name of particular historic feature may persist at one remove – as for example where the existence of ‘Norman Farm’ is reflected in the present day address ‘Norman Farmhouse’ (perhaps indicating the retention of a historic building in circumstances where the organisation of agriculture has changed). In such cases, the present name serves as an indexical sign for the historic feature: these are referred to as ‘**indexical matches**.’ (This is consistent with the English Heritage method for noting farmhouses on working farms (a unit described for example as ‘Ash Farm’ being associated with a house described as ‘Ash Farmhouse’)). In a third class of circumstance, a present day address such as ‘Dodd’s Farm’ stands in close proximity to a historic feature (such as ‘Wellhouse Farm’), where a name may have changed. These are referred to as ‘**possible matches**’.
- 2.8 It is of course possible that a historic feature is not evidenced in current addressable objects. In principle, there are three reasons why this may be the case. First, the farm building may have not survived. Second, the building may have survived but may not be addressable (eg it may be a yard, an isolated agricultural building (or indeed a whole farm complex) which is neither a dwelling nor receives letters as a non-residential address). Thirdly, grid references (either associated with PAF data or English Heritage data) may be incorrect<sup>1</sup>. This third category potentially includes cases where a number of geographically disparate properties share the same unit postcode.
- 2.9 It is potentially important to distinguish historic farm property that is not addressable (in the sense above) from that which cannot be matched because of inaccurate grid references. The circumstances in which historic farm properties might not match with current addresses are considered further in Appendix Three. Where property is not addressable, this reflects its current use (as storage, for example) and the proportion of historic farm property in such uses forms a proper part of any analysis. Where property cannot be found, on the other hand, it must necessarily be excluded from the analysis. Fortunately, it is possible to provide an overall estimate of the proportion of grid references on PAF which are recorded as being more than 400 metres from their correct location.

Table 2.1: Linkages between the Historic Farmstead Data and Postal Addresses

<b>Type</b>	<b>Entire English Heritage Study</b>		<b>High Weald AONB Portion</b>	
	<b>Cases</b>	<b>%</b>	<b>Cases</b>	<b>%</b>
Exact match	5,199	36.2	1,375	38.5
Indexical match	1,322	9.2	348	9.7
Possible match	3,446	24.0	917	25.7
No match	4,396	30.6	930	26.1

<sup>1</sup> EH have devoted substantial officer time to correcting inaccurate grid references and it is presumed that the historic features are reliably referenced.

- 2.10 Overall, it appears that 74% of (English Heritage) farm historic features within the High Weald AONB are close to postally addressable properties. A further ten percent of historic features are described as extant, but are not near addressable property. Three-quarters of historic features described by English Heritage as 'farmsteads' are close to existing postally addressable properties. In the case of features described as 'outfarms', the corresponding figure is only 47%. This suggests that outfarms are not being put to other residential or commercial uses (albeit that they might remain in use as storage).
- 2.11 Although the English Heritage study was designed only as a pilot investigation to explore the possibility of using particular computational techniques to enrich understanding of the current social and economic context of historic buildings, it proved remarkably successful. They form useful tools in assessing survival and allow the contribution of historic buildings to the overall building stock (and to the stock of units in particular uses) to be more readily apprehended. The linkage mechanisms developed enables the construction of Figure 2.3 which highlights the substantial contribution of historic buildings to the overall building stock and especially in the area around Heathfield.

Figure 2.1: Historic features as points

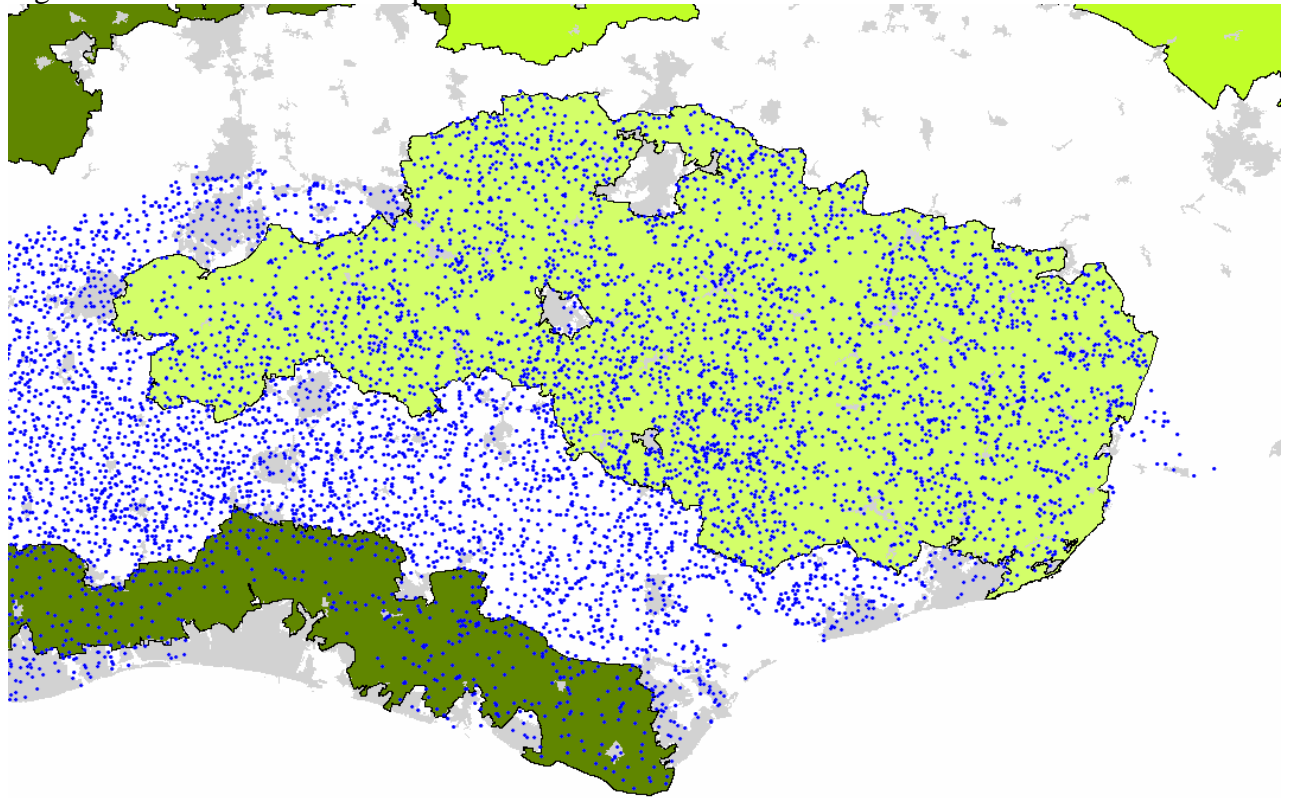


Figure 2.2: Historic features as a grid, smoothed by 2 kms

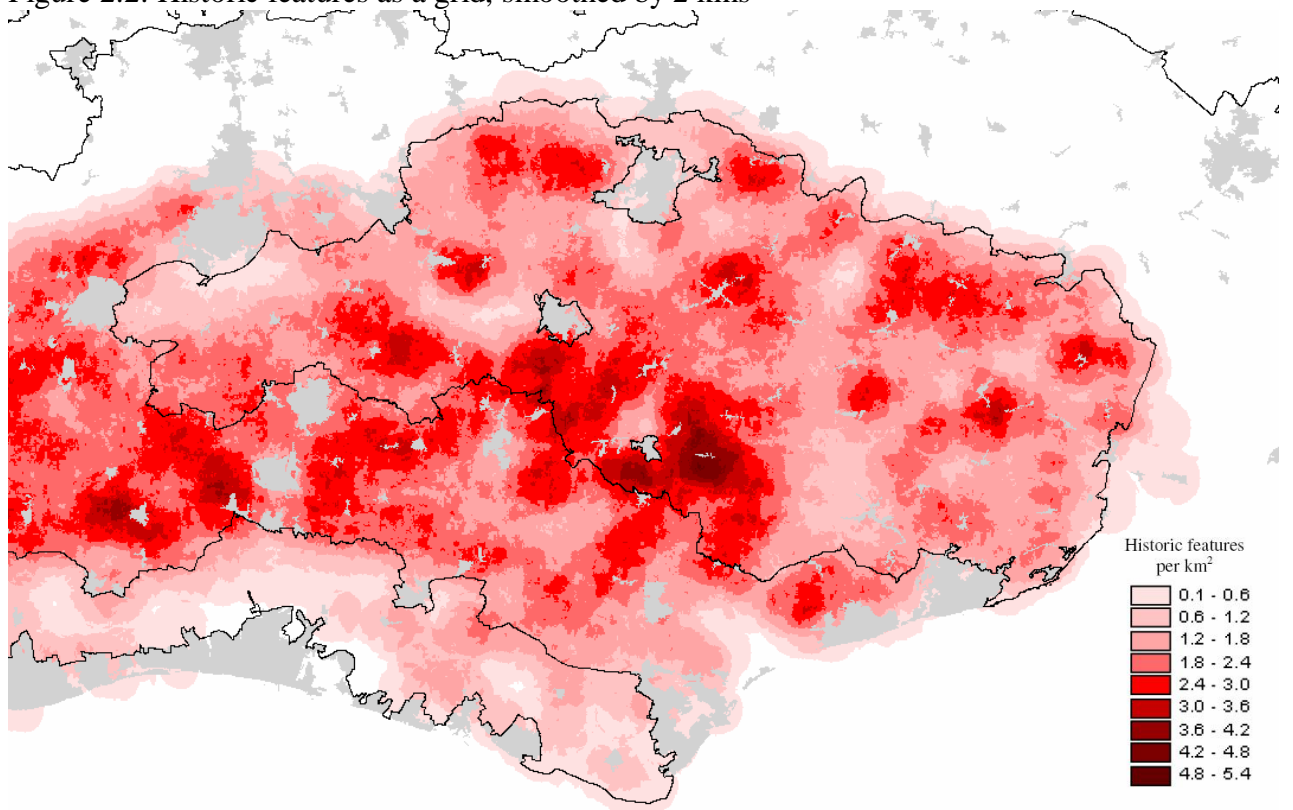
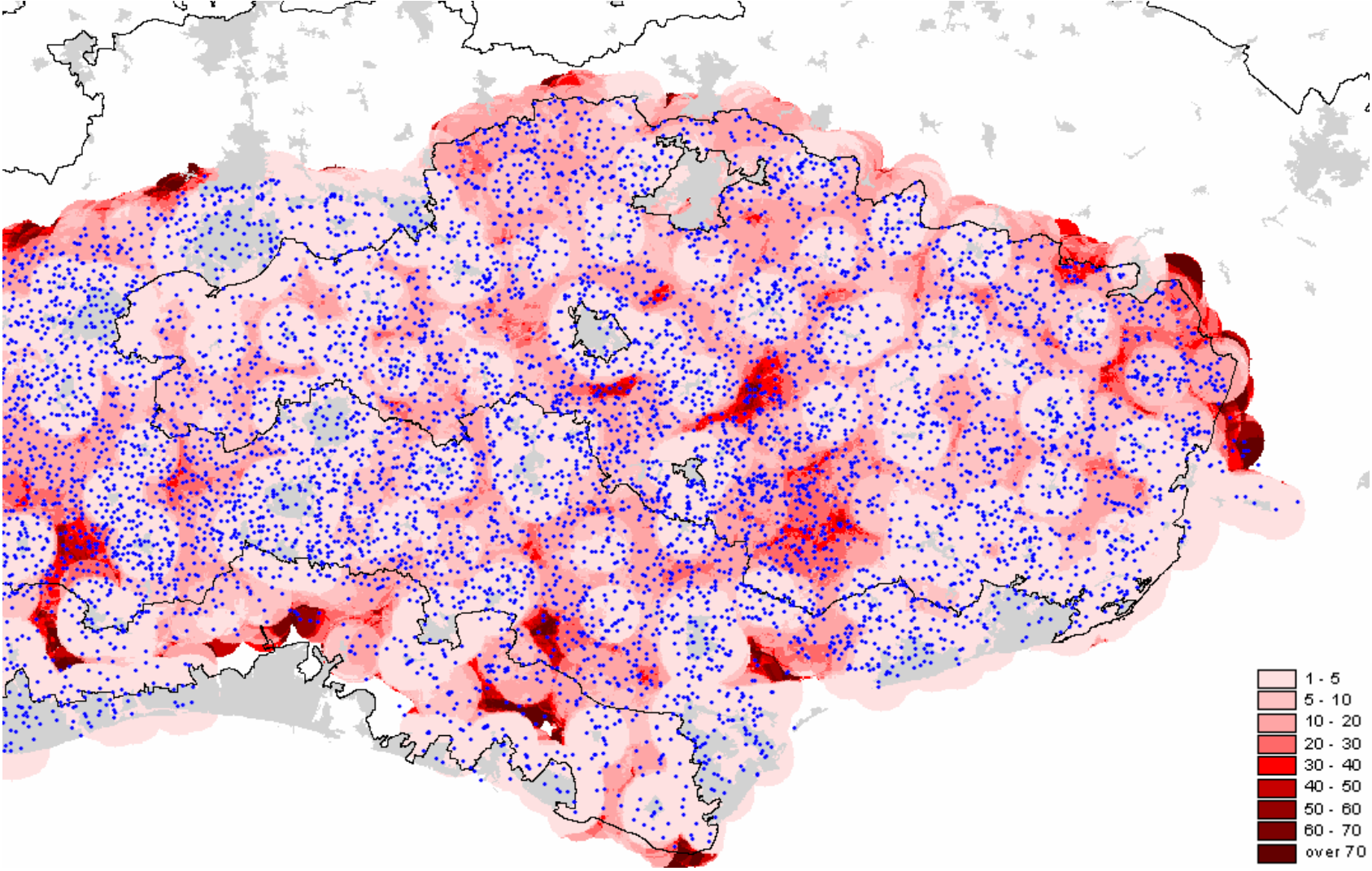


Figure 2.3: Features as a percentage of all domestic addresses (2km)



### 3. CURRENT ECONOMIC FUNCTION OF HISTORIC FARM PROPERTY

- 3.1 Historic farmsteads provide the base for a range of economic activity. Some historic farm buildings serve solely as business premises. Others provide the setting for home-based business. Where such buildings are used entirely as business premises, the associated activity can frequently be inferred from the Postcode Address File (PAF) which includes an occupier name. In some cases – where a substantial company is involved- understanding of the activity may be augmented by reference to company accounts. Many smaller home-based businesses can be identified by reference to directories available on the world-wide web, or their own websites section considers the entire range of economic activity that might be imputed from any of these sources.
- 3.2 For the purposes of the English Heritage study, an attempt was made to consider the current use of all linked surviving property by reference to its occupiers. Overall, it appears that within the High Weald AONB, just over half of historic farm property is currently in residential use (52%) with 40% being in agriculture or agriculture-related uses (see Table 3.1). Only four percent appears to be in non-agricultural business uses (the remaining 4% of uses being unclear). These proportions mirror very closely those found across the English Heritage study area as a whole.

Table 3.1: Current Economic Function of surviving Historic Features

	Entire English Heritage Study		High Weald AONB Portion	
	Cases	%	Cases	%
Agricultural	3,434	38.5	1,011	39.6
Agricultural related	60	0.7	10	0.4
Hospitality / tourism	37	0.4	7	0.3
Other	285	3.2	83	3.3
Residential	4,718	52.9	1,329	52.1
Unknown	379	4.3	112	4.4

- 3.3 The English Heritage study identified a tendency for the highest densities of agricultural uses to be found in East Sussex and the highest density of residential uses in West Sussex. The overall balance between residential and non-residential use is perhaps best illustrated by Figure 3.3. Residential use is particularly prominent at the margin of the AONB in Kent between Tonbridge and Tenterden (see Figure 3.1).
- 3.4 The area around Heathfield (see Figure 3.2) by contrast stands out as a locality where agricultural uses remain and residential uses are relatively limited. In such areas the density of farm units has tended to be high historically. Nevertheless, a tendency to residential intensification in the Heathfield area was identified in recent work for the former Countryside Agency (though this tendency is not marked across the AONB as a whole) (Bibby and Brindley, 2006b).

- 3.5 For non-residential property, the Postcode Address File provides an occupier name. Computational analysis of the occupier names, in the English Heritage Study (discussed in Appendix 4) allowed a standard industrial classification (SIC) to be imputed in those cases where the business name embodies a literal business description. Examples of imputed SICs are provided in Box 3.1 and the overall distribution of uses summarised in Table 3.1 has been constructed on this basis.
- 3.3 The English Heritage study also showed that when historic farm property is converted to business use, the occupiers tend to be micro businesses (with a turnover less than £1.5M pa). Historic farm property in the High Weald in use by more substantial businesses is indicated in Table 3.2. This table updates for the information set out in the English Heritage study for the area within the AONB. It shows the postcode, the company name and address, the name of the farm property as recorded by English Heritage, the property name on the Postcode Address File (PAF), the 2003 Standard Industrial Classification (SIC). It also indicates whether the historic farm property serves as the registered office of the company.
- 3.4 Table 3.2 shows some representation of substantial agricultural business interests in historic farm property (Spelmonden Estate, Grampian-Country Chickens Limited, Sovereign Chicken Limited, and Orchidwood Mushrooms Limited). Rather more surprisingly occupiers also include Body Shop International Plc and Denis Ferranti Meters Limited. It is clear, however, that representation of substantial businesses within historic farm property is very modest.
- 3.5 It may, however, be useful to consider the possible role of such buildings in home-based business activity. It should be understood that the ratio of microbusiness to households in the High Weald is high relative to the South East region and England as a whole, and that the proportion of people working at home is also high. One way of beginning to gauge the degree and nature of additional business activity that might be conducted from historic farm premises in the AONB is to consider economic activity visible on the world-wide web. The manner in which this has been done is set out in Appendix Eight. In outline, it involves identifying each unit postcode referring to historic farm property, undertaking a Google search on each of these unit postcodes in turn, parsing the sgml file returned by the search to identify the web sites which carry information about activity at the unit postcode in question, and then using natural language processing techniques to identify the activities being undertaken.
- 3.6 The type of search picks up (inter alia) websites which provide Companies House information (including [www.creditgate.com](http://www.creditgate.com), [www.ukdata.com](http://www.ukdata.com), [www.companiesgate.co.uk](http://www.companiesgate.co.uk), [www.annualreportgate.co.uk](http://www.annualreportgate.co.uk), [www.companysearchgate.co.uk](http://www.companysearchgate.co.uk) and [companyprofilegate.co.uk](http://companyprofilegate.co.uk)). References on these sites point either to the presence of a company registered office, or to the address of the director of a limited company. A search of the type undertaken here will also return references to [www.do-business.net](http://www.do-business.net) and do-business.net which are maintained by Dun and Bradstreet and which point to the presence of a company registered office at the unit postcode in question. It is therefore possible- as a first step to gauging the extent of business activity being conducted from residential property - to identify registered offices of businesses in unit postcodes within High Weald AONB which include historic farm property and where Royal Mail do not recognize any non-residential addresses.

3.7 Some 123 limited liability companies are registered at addresses referenced by this set of unit postcodes (which refer to 839 dwellings). This implies that there are 14.7 such businesses registered at residential addresses for every hundred dwellings. The types of activity in which these businesses engage include

tourist accommodation(4), accountancy(3), agricultural contracting (1), antique dealing(2), architect(2), athletics(1), audio(1), birds(1), breeding dogs(1), building( 5), camping(1), car dealing( 5), caravans(1), caravan site(1), catering(2), cattle(1), ciderhouse(1), cleaning(2), computers(1), corporate entertainment(1), dance(1), day nursery(3), decorating (1), dentist(2), dogs(1), driving school(1), electrician(2), environmentalism(1), florist(1), foods(3), freight(1), furniture dealing(1), garden centre(1), gardening(1), genealogist(1), graphic design(2), graphology(1), herbalism(1), holiday homes(3), homeopathy(1), hop growing(1), horses(2), jazz(1), joiners(1), kennels(2), kitchens(1), koi(1), landscaping(3), language school(1), lpg systems(1), media systems(1), music(1), nannying(1), nurseries(1), osteopathy(2), pensions advice (1), physiotherapy(1), plant hire(1), plumbing( 2), ponies(4), printing( 1), pub(2), puppets(1), quadbiking(1), saddlery(1), sound(1), souvenirs(1), sport(1), gifts(1), therapy(4), tractors(1), travel(2), treats(1), trucks(1), tv film(1), vehicle bodies(1), vet(1), waste(1), weddings(2), whisky dealing(1), and wine dealing( 2).

3.8 Somewhat tentatively, one might distinguish five groups of activity undertaken by these businesses. A first group includes professional services which might be offered from home without requiring special premises and which would be unlikely to require planning consent. For a second group of businesses, storage of stocks may be a concern (eg dealing in antiques, furniture, cars and liquor).

**Group 1: Professional Services**

accountancy(3), architectural practice, dentist(2), pensions advice (1), vet(1), graphic design(2), graphology(1), herbalism(1), and various forms of therapy, genealogist(1), audio(1), corporate entertainment(1), jazz(1), media systems(1), music(1), sound(1), tv film(1), birds(1).

**Group 2: Specialist Dealerships**

dealing in antiques(2), furniture(1), cars(5) and liquor(3).

3.9 Engagement in a third group of business activities, however, is likely to require a small holding and may contribute directly to the production of a distinctive type of rurality. A fourth related group of businesses- which take advantage of environmental quality -engage in provision of tourist accommodation and related activity. Substantial premises are also likely to be required for a fifth group of businesses engaged in plant hire, truck and tractor dealing and vehicle body work. One might add to this a fifth omnipresent group of businesses concerned with building trades and a series of other services.

**Group 3: Smallholding**

agricultural contracting (1), breeding dogs(1), dogs(1), ciderhouse(1), cattle(1), hop growing(1), horses(2), kennels(2), nurseries(1), florist(1), foods(3), holiday homes(3), landscaping(3), gardening(1), koi(1), ponies(4), quadbiking(1), saddlery(1).

**Group 4: Tourist Related**

tourist accommodation (4), camping(1) and caravan sites(1).

**Group 4: Omnipresent**

plant hire(1), truck and tractor dealing (2), vehicle body work(1), building( 5), decorating (1), electrician(2), plumbing( 2), joiners(1), kitchens(1), athletics(1), caravans(1), catering(2), cleaning(2), computers(1), dance(1), day nursery(3), driving school(1), environmentalism(1), freight(1), garden centre(1), nannying(1), language school(1), lpg systems(1), printing( 1), pub(2), puppets(1), souvenirs(1), sport(1), travel(2), gifts(1), waste(1), weddings(2), treats(1).

3.10 While the discussion of paras 3.7-3.9 moves beyond the confines of the English Heritage study, it is still restricted to consideration of business undertaken by limited liability companies. The exploration may be developed somewhat further by considering services which are offered from property treated by Royal Mail as

residential and where no limited liability companies are registered. There are exactly 500 unit postcodes addressing historic farm property in the High Weald AONB, with no non-residential delivery points, and without Dun and Bradstreet entries. The extent and nature of economic activity associated with this group of addresses characterizes smaller home-based business. From this group of properties a range of services are offered including

tourist accommodation(32), accountancy(1), acoustics consultancy(1), adult(1), ag reg(1), agricultural contracting (1), air conditioning(1), alpaca rearing (1), animal rescue(1), antique dealing(1), architectural services(1), art dealing(1), audio(1), b2b(1), bathrooms(1), beauty treatments(1), biotechnology(1), book dealing(1), branding(1), building(11), ca(1), camp sites(4), caravans(2), caravan sites(2), car boot sales(2), card dealing(7), cattle rearing(5), clairvoyance(1), cleaning(1), coach hire(1), computing(1), conservatories(1), construction(1), creative(3), soft furnishings (2), data(1), day nursery(1), dentist(1), design(1), design and print(1), dog breeding(1), driving school(2), electrician(6), embroidery(1), energy(1), exotic fish(1), expert witnesses(2), fasteners(1), fibre optics(1), films(1), financial advice(4), fishing(4), florist(2), foods(13), fuel cells(1), funerals(1), garden centre(1), gardening(8), gifts(2), gliders(1), graphic design(1), gutters(1), herbs(1), homeopathy(1), horses(11), horsetrailer(1), import-export(1), inflatable hire(1), interior design(1), kennels(1), kinesiology(1), kitchens(1), kompass(1), landscapes(3), languageschool(1), loans(1), management consultancy (1), midwifery(1), militaria(1), mortgage broking(1), music(2), music teaching(1), motor vehicle repair(3), nannying(1), organ building(1), paddocks(1), paintball(1), paving(2), pets(2), physiotherapy(2), pigs(1), plumbing(4), ponies(8), property services(3), property repairs(2), pub(4), publishing(1), recycling(1), restaurant(1), sheds(1), sheep(2), solicitor(1), sound(2), stamp dealing(1), stoolball(1), stud(2), surveyor(2), taxi(1), technology(1), theatre (1), therapy(8), trichology(1), trucks(1), tuition(1), web design(2), wedding services(3), woodturning(1).

3.11 The range of activities undertaken here parallels those in the five groups of home-based limited concerns, though there are important differences. The first group of activities referred to in para 3.8 of professional services easily undertaken in a domestic setting is well represented. Over 60 businesses are found in this group.

**Group 1: Professional Services**

accountancy(1), acoustics consultancy(1), architectural services(1), dentist(1), financial advice(4), mortgage broking(1), music(2), music teaching(1), branding(1), solicitor(1), sound(2), adult(1), property services(3), expert witnesses(2), audio(1), surveyor(2), physiotherapy(2), publishing(1), therapy(8), trichology(1), language school(1) tuition(1),loans(1), management consultancy (1), web design(2), computing(1), creative(3), data(1), design(1), design and print(1), interior design(1), kinesiology(1) homeopathy(1), graphic design(1), herbs(1), soft furnishings (2), beauty treatments(1), clairvoyance(1), midwifery(1), theatre (1). The second group with potentially more demanding storage requirements is also found (eg dealing in antiques, furniture, cars and liquor). [14] antique dealing(1), art dealing(1), book dealing(1), militaria(1), stamp dealing(1), fasteners(1), car dealing(7), import-export(1).

3.12 The third group of ‘smallholding’ activities is very strongly represented by 70 unincorporated home-based micro-businesses. These activities grade through agriculture, animal rearing, the food industry and to equestrian recreation. One particularly notable aspect of this is the extent of animal rearing- (particularly of Sussex Cattle which evidently takes place on a small scale- but also sheep (2) alpaca and pigs(1). More generally this group may be seen in combination with tourist related activities which may support this kind of activity.

**Group 3: Smallholding**

agricultural services and contracting (2), landscapes(3), gardening(8), alpaca rearing (1), animal rescue(1), dog breeding(1), kennels(1), cattle rearing(5), horses(11), sheep(2), stud(2), fishing(4), pigs(1), ponies(8), florist(2), foods(13), pets(2), garden centre(1).

**Group 4: Tourist Related**

tourist accommodation(32), camp sites(4), caravan sites(2), pub(4), restaurant(1),tourist accommodation (4), camping(1) and caravan sites(1)

3.13 The most important distinction between home-based limited liability companies and their unincorporated counterparts is the number of the latter in the fourth group- which offer tourist accommodation These include bed and breakfast, self- catering units, camp sites and caravan sites. In some instances, the self-catering units are

themselves historic farm buildings (such as Pricketts Hatch (see [www.prickettshatch.co.uk](http://www.prickettshatch.co.uk))).

3.14 Closer examination of the information related to home- based microbusiness in historic farm property suggests that its intensity and character varies across the High Weald (see Figure 3.4). First, the proportion of economically active people working in the home varies systematically across the area as illustrated in Figure 3.5. This points to a general tendency to higher dependence on home working in the South and East of the area. (The graphic shows only data for Census Output Areas that include historic farm property, but it does not correspond directly to the postcodes or businesses discussed in the preceding paragraphs). The intensity of participation in home-based business revealed by the web searches also varies from place to place. The type of activity varies also. Thus as shown in Figure 3.6a the tendency to engage in home-bases in the ‘smallholding’ and accommodation groups appears generally greater to the east of Tunbridge Wells and Crowborough. The highest concentration of such businesses is found in a corridor joining Mayfield, Wadhurst, Lamberhurst and Goudhurst with a secondary cluster around Robertsbridge.

Box 3.1: Examples of derived Standard Industrial Classifications (SICs) from the English Heritage study

SIC	SIC name	EH name	PAF name	Occupier
46300	Builders Carpentry and Joinery	Valley Farm	Valley Farm	Doug Hopkins Joinery
47531	Publishers	Great Pell Farm	Great Pell Farm	Watt Publishing Co
50000	Construction	Wildings	Wildings	Beckley Builders Ltd
64100	Food Retailing	Ferndene Farm	Ferndene Farm Shop	Ferndene Farm Shop
65400	Other Specialised Retail Distribution Non-food	Motts Farm	Motts Farm	Kentdale Antiques
65400	Other Specialised Retail Distribution Non-food	West End Farm (Kiln Farm)	West End Farm	West End Farm Activity Toys
66500	Hotel Trade	Summerley Barn	Summerley Barn Hotel	Summerley Barn Hotel
66700	Other Tourist or Short-Stay Accommodation	Wicks Farm	Wicks Farm Caravan Park	Wicks Farm Caravan Park
67700	Libraries, Museums, Art Galleries, etc	Forstal Farm (Marsh's Farm)	Forstal Farm	Toy and Model Museum
83600	Accountants, Auditors, Tax Experts	Radford Farm	Radford Farm	Elizabeth A Gibson Accountant & Tax Consultant
83952	Market Research and Public Relations Consultants	Whydown Farm	Whydown Farm	Nick Hollington Marketing Consultant
85000	Owning and Dealing in Real Estate	Topp's Farm	Topps Farm	Breamore Estate co Ltd
90000	Other Services	Daegmarshfield Farm	Daegmarsfield Farm	Daegmar Angora Coats
93200	School Education (nursery, primary and secondary)	Parsonage Farm	Parsonage Farm Infant School	Parsonage Farm Infant School
95300	Medical Practices	Meadow Farm	Meadow Farm	The Dunhill Medical Trust
96902	Other Community Services	Wakehams Green	Wakehams Green Community Centre	Wakehams Green Community Centre
97910	Sport and other Recreational Services	Padiss (Padas)	Padiss Riding Stables	Padiss Riding Stables

Figure 3.1: Number of Historic Features in Residential Use per square kilometre (smoothed to 2 kilometres)

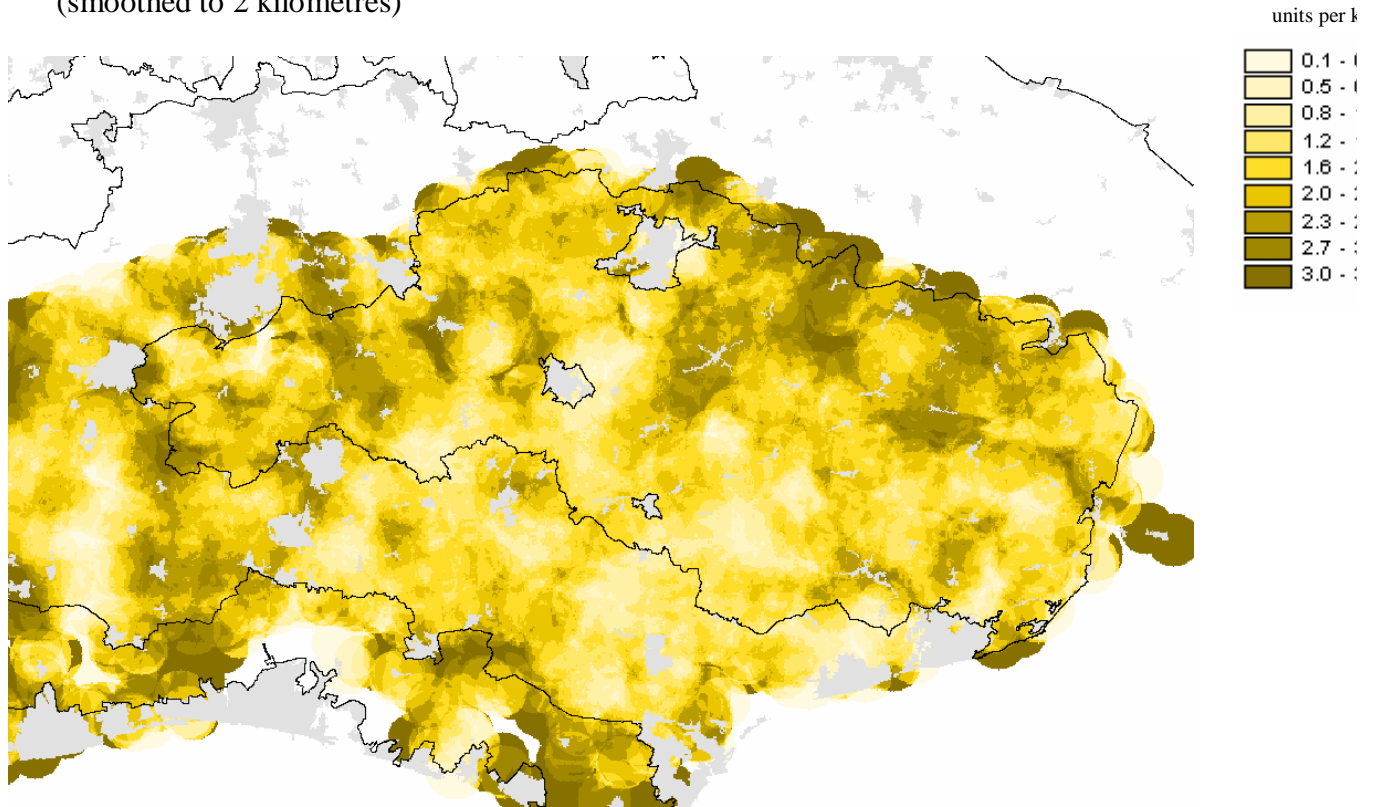


Figure 3.2: Number of Historic Features in Agricultural Use per square kilometre (smoothed to 2 kilometres)

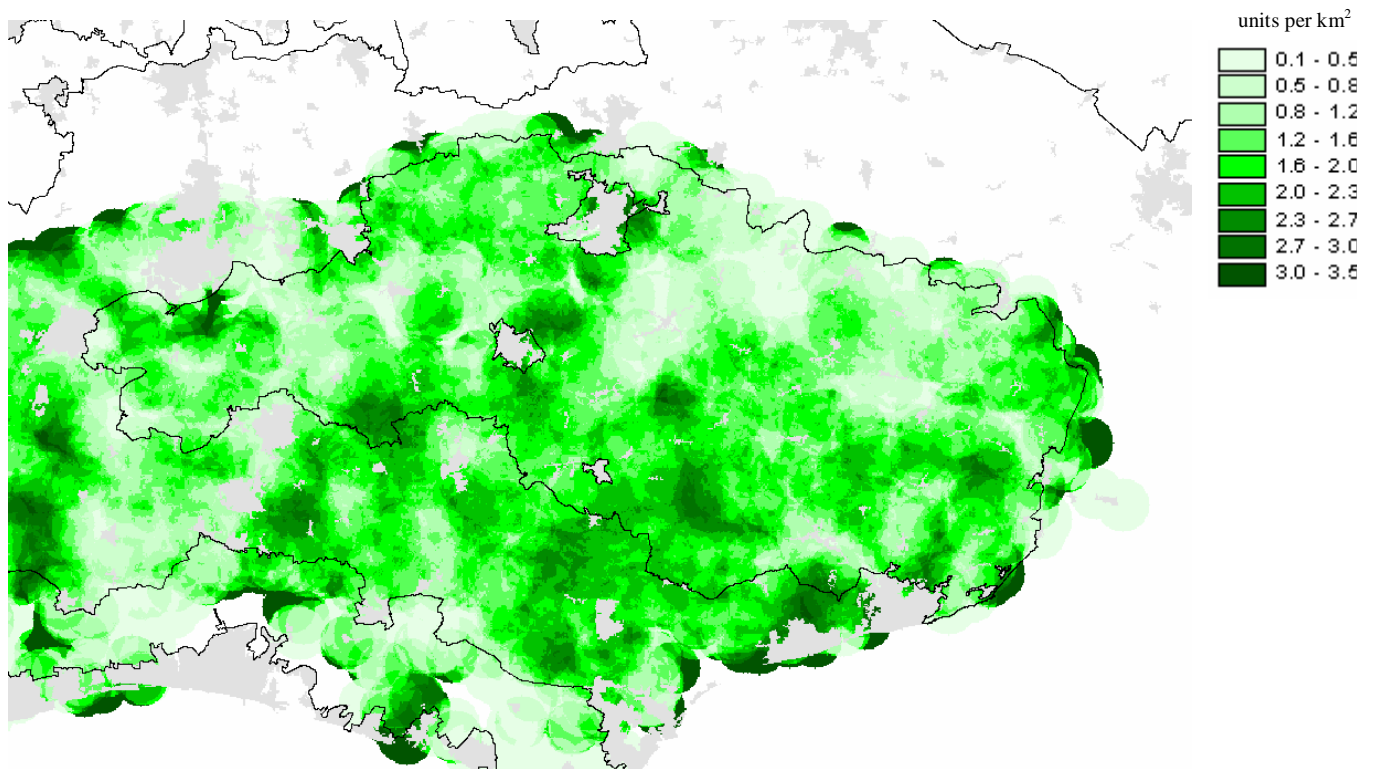
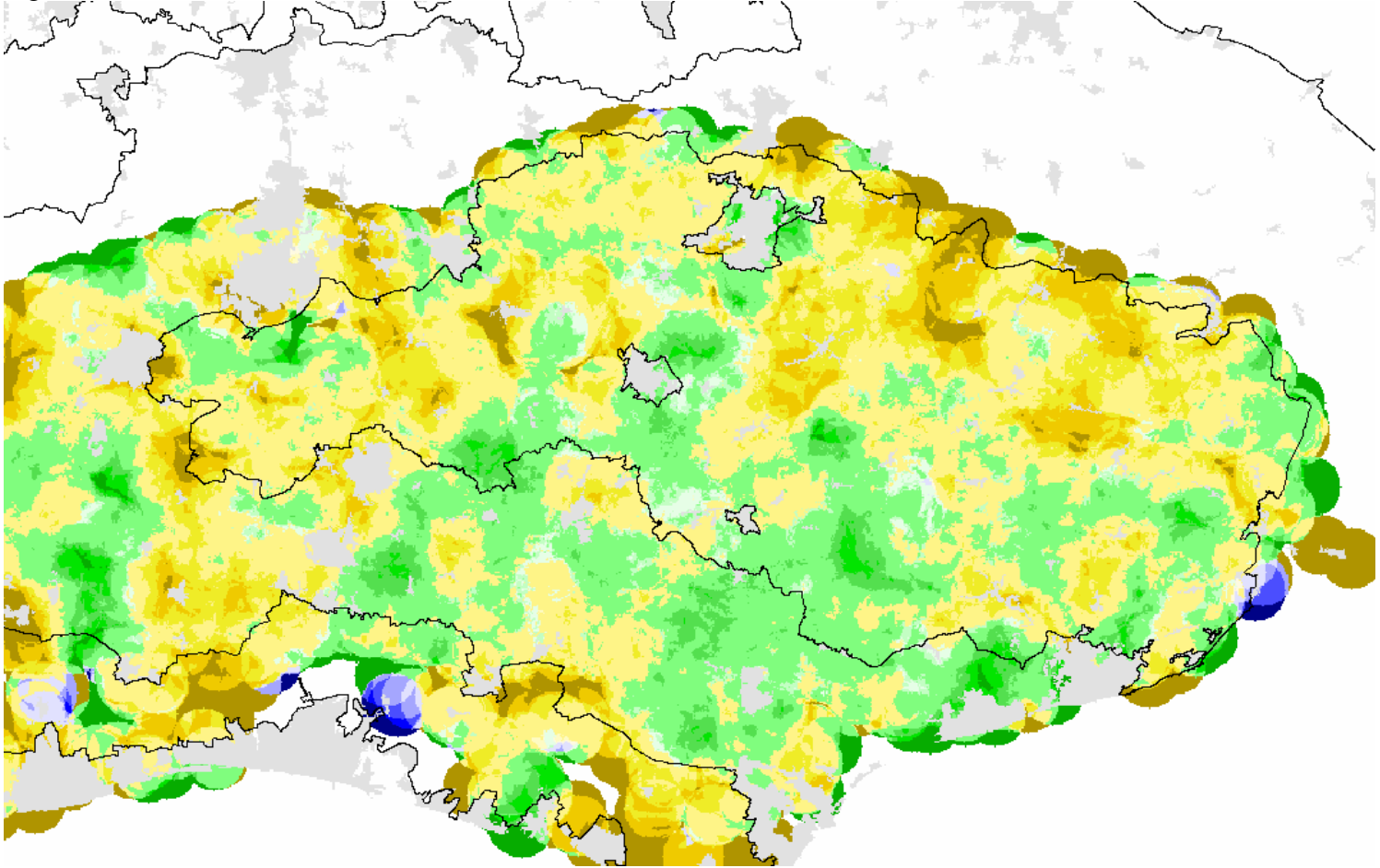


Figure 3.3: Balance of Residential and Non Residential Units, 2004



- Areas which are predominantly, currently in agricultural or related use (areas of green)
- Area which are currently in non-residential use other than agricultural (areas of blue)
- Areas which are predominantly, currently in residential use (areas of yellow)

Table 3.2: Business Occupiers with a Turnover in Excess of £1.5 million at locations of Historic Farmsteads

Postcode	Company Registration Number	Company Name	2003 SIC code	2003 SIC description	Address	English Heritage Name	PAF Name	Type <sup>1</sup>
TN219LQ	3143364	English Heritage Buildings Products Limited	4525	Other Construction Work Involving Special Trades	Coldharbour Farm Estate, Dallington, Healthfield, East Sussex	Coldharbour Farm	Coldharbour Farm	R&T
TN219LQ	3568975	English Heritage Buildings Limited	4525	Other Construction Work Involving Special Trades	Coldharbour Farm Estate, Dallington, East Sussex	Coldharbour Farm	Coldharbour Farm	R&T
TN339NU	341134	Skinners (Rye) Limited	5010	Sale of Motor Vehicles	Pigknoll Farm, Ashburnham, Battle, East Sussex	Pigknoll	Pigknoll Farm	R&T
TN127HS	2860638	Basic Chemical Solutions (UK) Limited	5155	Wholesale of Chemical Products	Marle Place, Brenchley, Tonbridge, Kent	Marle Place	Marle Place Chequertree	R&T
TN173PN	1005611	Fridays Limited	5130	Wholesale of Food, Beverages and Tobacco	Chequer Tree Farm, Benenden Road, Cranbrook, Kent	Chequertree Farm	Farmhouse	R&T
RH176SQ	3779971	Ardingly College Limited	8021	General Secondary Education	Ardingly College, College Road, Ardingly, Haywards Heath, West Sussex	Ardingly College	Ardingly College	R&T
TN219HU	2723190	Ecumet (UK) Limited	5157	Wholesale of Waste and Scrap	Lucks Farm Greenwoods Lane, Punnetts Town, Heathfield, East Sussex	Lucks Farm	Lucks Farm House	R&T
TN316QT	2646362	Survive Pshriek Limited	7487	Other Business Activities not Elsewhere Classified	Gate Court Farm, Station Road, Northiam, East Sussex	Gate Court	Gate Court	R&T
TN30NR	4728571	Went Services Ltd	7414	Business and Management Consultancy Activities	Went Farm House, Langton Road, Speldhurst, Kent	Went Farm	Went Farm	R&T
TN74JD	3367161	Vector Resourcing Ltd	7450	Labour Recruitment and Provision of Personnel	Castle Farm Barn, Hartfield, East Sussex	Castle Farm	Castle Farm	R&T
TN61UU	2668799	Onwatch Plc	7460	Security and Related Activities	Hole Farm, Lye Green, Crowborough, East Sussex	Hole Farm	Hole Farm	R&T
TN63QU	1388624	Dunorlan Farm Developments Limited	7011	Development and Selling of Real Estate	The Estate Office, Greenhouse Farm, Town Row, Crowborough, East Sussex	Greenhouse Farm	Greenhouse Farm	R&T
TN330RL	4059744	Logpoint Limited	7000	Business services	Beanford Farm House, New Road Sedlescombe, Battle, East Sussex	Beanford Farm	Beanford Farm	R&T
TN38DS	3595260	Lamberhurst Engineering Limited	5188	Wholesale of Agricultural Machinery and Accessories and Implements, Including Tractors	Priory Farm Parsonage Lane, Lamberhurst, Tunbridge Wells, Kent	Priory Farm	Priory Farm	R&T
RH176HF	932584	Newells School Trust Limited	8021	General Secondary Education	Handcross Park School, Handcross Park, Handcross, Haywards Heath, West Sussex	Handcross Park	Handcross Park School	R&T
TN127HS	1640117	Marlin Chemicals Limited	5155	Wholesale of Chemical Products	Marle Place, Marle Place Road, Brenchley, Tonbridge, Kent	Marle Place	Marle Place	T
TN174EU	4143834	ISS Damage Control Limited	4500	Construction	Unit 2, Apple Pie Farm, Cranbrook Road, Benenden, Cranbrook, Kent	Apple Pie Farm	Apple Pie Farm	T
TN25HU	1284170	Body Shop International Plc (The)	5233	Retail Sale of Cosmetic and Toilet Articles	Quarry Farm, Bayham Road, Tunbridge Wells, Kent	Quarry Farm	Quarry Farm	T
TN218QR	1216782	Shirtstop UK Limited	5142	Wholesale of Clothing and Footwear	Monkhurst Farm, Sanfy Cross, Heathfield, East Sussex	Monkhurst Farm	Monkhurst Farm	T
TN56QT	271062	G H Smith & Son (Fuel) Limited	5112	Agents Involved in the Sale of Fuels, Ores, Metals and Industrial Chemicals	Buckland Barn, Wadhurst, East Sussex	Bucklandhill Farm	Buckland Hill Farm	R&T
TN171ES	550292	Lane Developments Limited	7011	Development and Selling of Real Estate	Trottenden, Lidwells Lane Goudhurst, Cranbrook, Kent	Trottenden	Trottenden	R&T

TN38BH	2779633	Current Affairs Electrical Contractors Limited	4531	Installation of Electrical Wiring and Fittings	Bartley Mill Oast, Bells Yew Green, Tunbridge Wells, Kent Hillsdown, Twyford Lane, Horsted Keynes, Haywards Heath, West Sussex	Bartley Mill	Bartley Mill Hillsdown	R&T
RH177DH	3033642	David Wilson's Trailers Limited	7121	Renting of Other Land Transport Equipment		Hillsdown Farm	Farm	R&T
TN171HE	624309	Spelmonden Estate Co Limited	111	Growing of Cereals and Other Crops not Elsewhere Classified	Spelmonden, Goudhurst, Cranbrook, Kent	Spelmonden Farm	Spelmonden Farm	R&T
TN225HN	4076909	Gibbs Solutions Ltd	7414	Business and Management Consultancy Activities	Sharlands, Blackboys, Uckfield, East Sussex	Sharelands	Sharlands Farm	R&T
TN330ST	219880	Denis Ferranti Meters Limited	3220	Manufacture of Television and Radio Transmitters and Apparatus for Line Telephony and Line Telegraphy	Old Peppering Eye Farmhouse, Peppering Eye, Battle, East Sussex	Peppering Eye Farm	Peppering Eye Farm	T
TN56NB	3120583	Lotus Leisure Ltd	7110	Renting of Automobiles	The Old Stables, Fox Hole Oast Fox Hole Lane, Wadhurst, East Sussex	Foxhole Farm	Foxhole Farm Oast House	R
TN56NB	3867650	Aztec Travel Systems Ltd	7260	Other Computer Related Activities	The Old Stables, Fox Hole Lane, Wadhurst, East Sussex	Foxhole Farm	Foxhole Farm Oast House	R
RH194HX	2320417	United Clothing (UK) Limited	5142	Wholesale of Clothing and Footwear	Kixes Oast, Horsted Lane, Sharpthorne, East Grinstead, West Sussex	Kixes	Kixes	R&T
RH194HX	3854493	Fashion Marketing Management Ltd	5142	Wholesale of Clothing and Footwear	Kixes Oast, Horsted Lane, Sharpthorne, East Grinstead, West Sussex	Kixes	Kixes	R&T
TN325JW	3097794	Orchard Produce Limited	5131	Wholesale of Fruit and Vegetables	Vinehall Farm, Robertsbridge, East Sussex	Vinehall Manor (Home Farm)	Vinehall Manor	R&T
TN85PS	1495929	Hugh Smallwood Holdings Limited	7487	Other Business Activities Not Elsewhere Classified	Shernden Manor, Marsh Green, Edenbridge, Kent	Shernden Farm	Shernden Farm	R&T
RH175JF	1049516	Youth With A Mission Limited	9131	Activities of Religious Organisations	Holmsted Manor, Staplefield Road, Cuckfield, Haywards Heath, West Sussex	Holmstead Farm	Holmsted Farm	T
TN74LD	1273984	Sovereign Chicken Limited	1513	Production of Meat and Poultry Meat Products	Great Cansiron Farm, Butcherfield La, Hartfield, East Sussex	Cansiron	Great Cansiron Farm	T
TN74LD	sc069320	Grampian-Country Chickens Limited	1513	Production of Meat and Poultry Meat Products	Great Cansiron Farm, Butcherfield Lane, Hartfield, East Sussex	Cansiron	Great Cansiron Farm	T
TN316TS	2808043	Orchidwood Mushrooms Limited	1533	Processing and Preserving of Fruit and Vegetables not Elsewhere Classified	Hobbs Lane, Beckley, Rye, East Sussex	Hobbs Farm	Hobbs Farm	T

*1: Denotes whether the company entity is a Registered Office (R), Trading Address (T) or both (R&T).*

Figure 3.4: Micro-businesses per household (per km<sup>2</sup>) (10km smoothing)

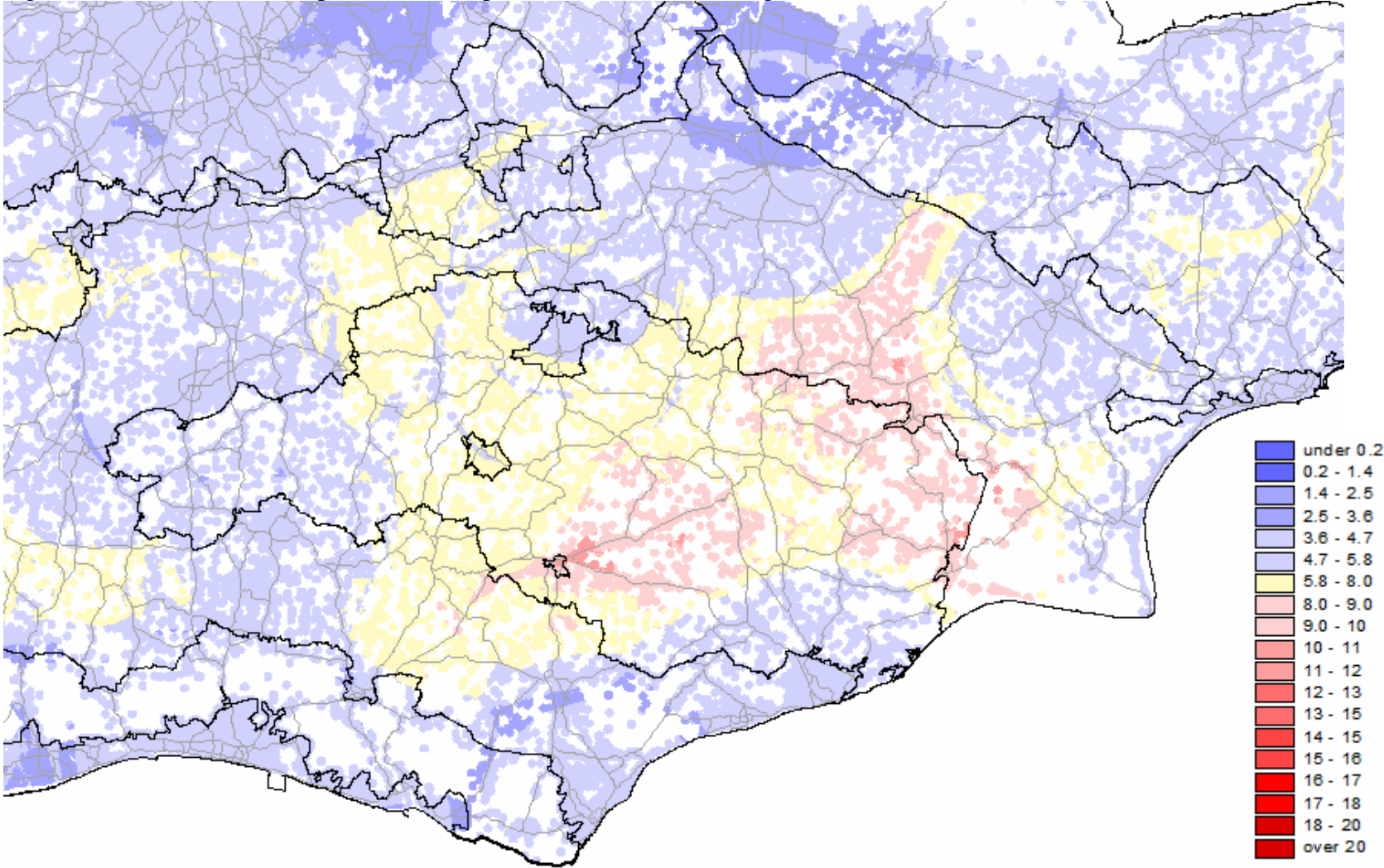


Figure 3.5: Home-working at Historic Farm Output Areas, as a percentage of all 16-74 in employment

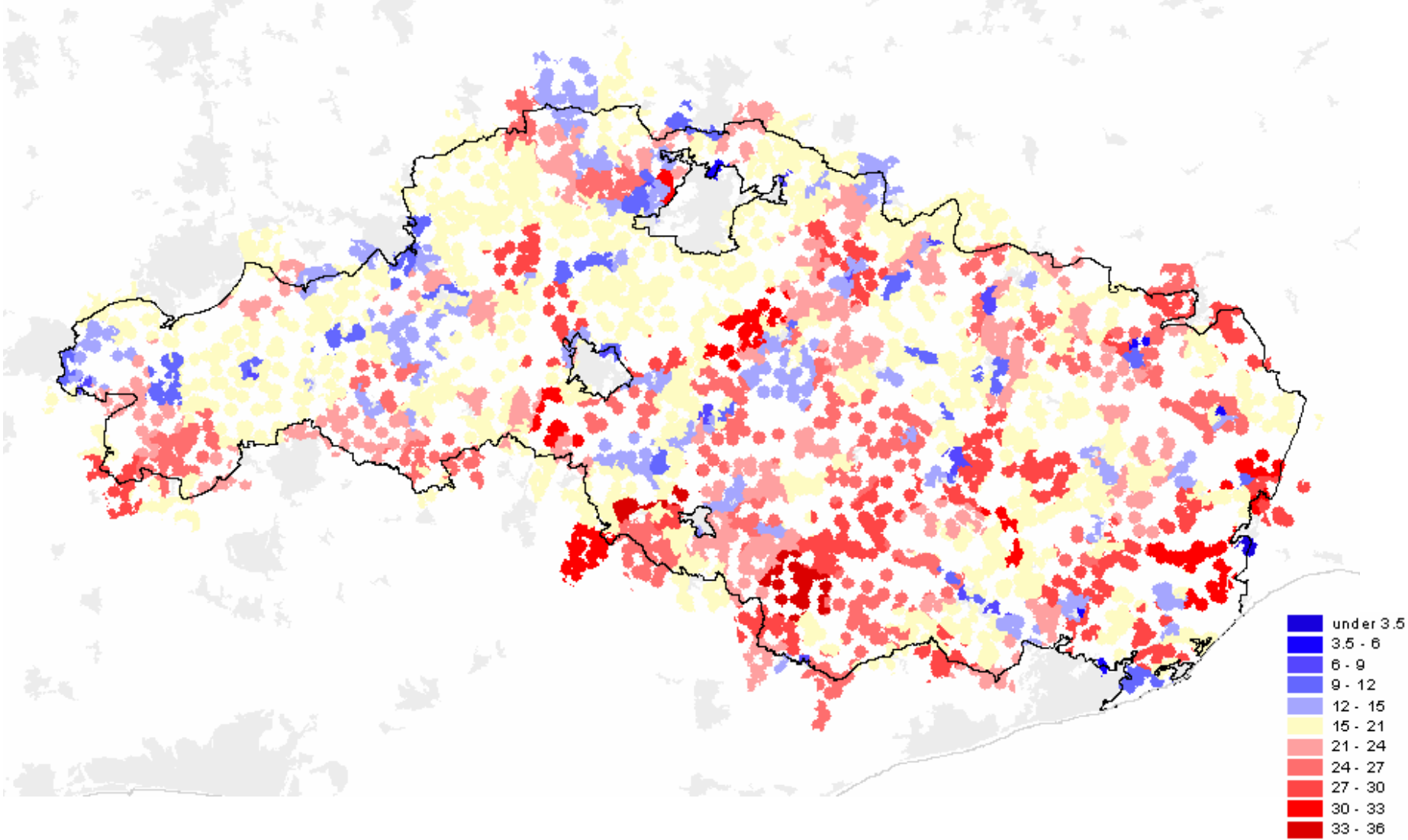
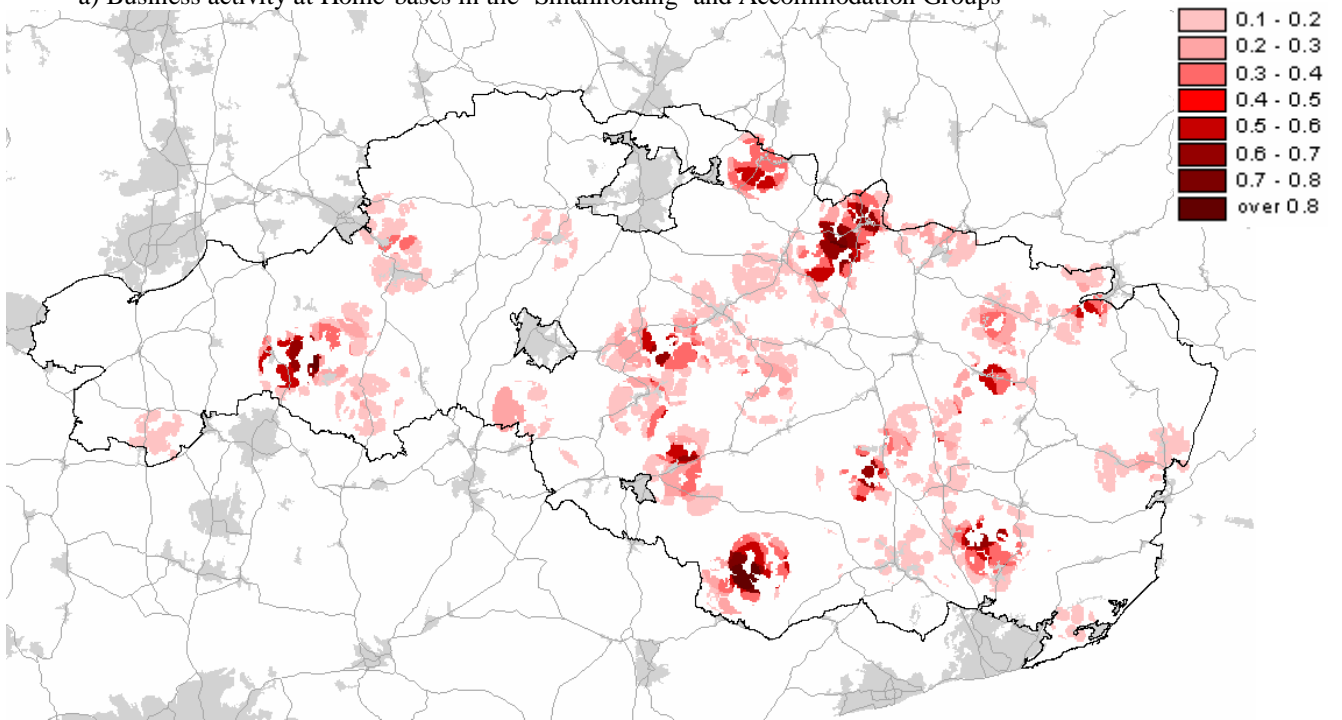
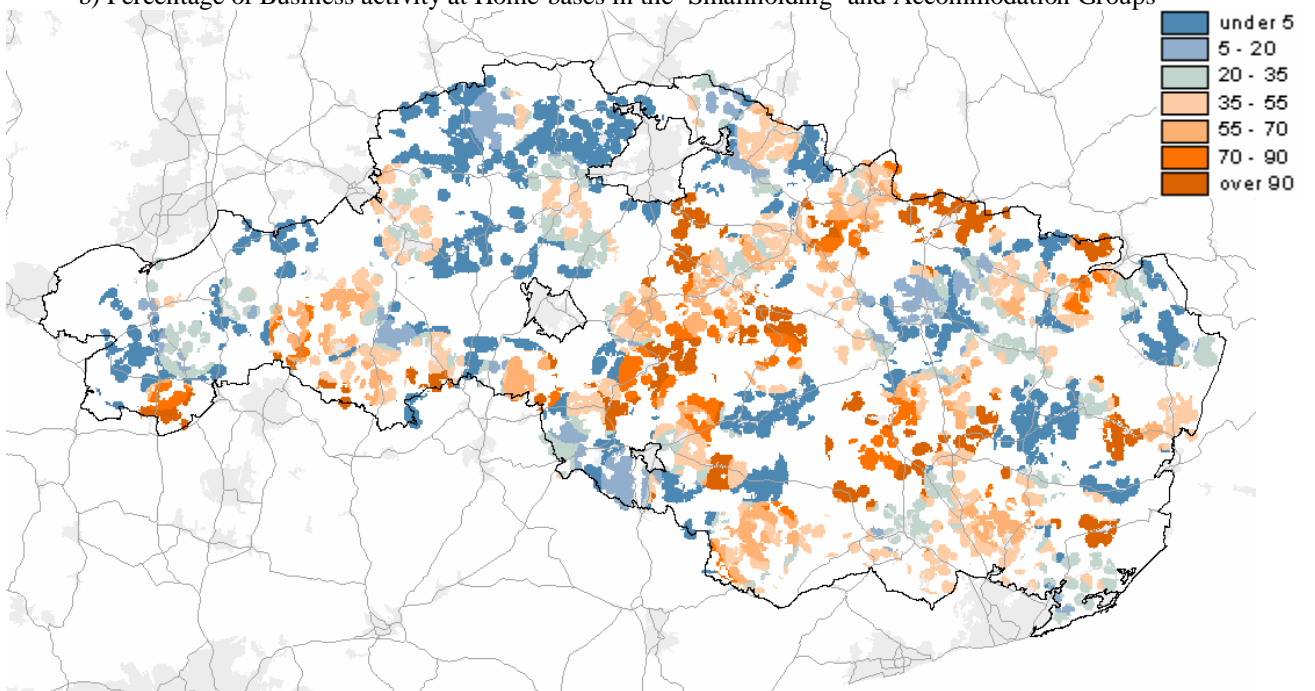


Figure 3.6: Home-bases in the 'Smallholding' and Accommodation Groups

a) Business activity at Home-bases in the 'Smallholding' and Accommodation Groups



b) Percentage of Business activity at Home-bases in the 'Smallholding' and Accommodation Groups



#### **4. HISTORIC FARM PROPERTY: HOUSE PRICES AND SOCIAL ROLE**

- 4.1 As emphasised in the previous report to English Heritage, historic farm houses and more generally historic agricultural buildings appear to provide dwellings that are much sought after. There is minimal evidence of the construction of new dwellings in the immediate vicinity of historic farm property. High demand and tight planning constraint implies high price levels and also the possibility of intensification of residential use.
- 4.2 The English Heritage study attempted to unravel the contribution of new build to meeting the demands of an increasing number of households from that of intensified use of existing property. As shown in Figure 4.1, the highest rates of increase (2000 to 2004) in the overall stock of dwellings in and around urban areas, particularly around Bexhill and Hastings to the south-east of the AONB and Burgess Hill and Haywards Heath to the south.
- 4.3 Within the protected contexts immediately encircling historic farmsteads, it is conversion and subdivision that are critically important rather than newbuild. It is also clear that areas of dispersed settlement in the High Weald (where densities of historic farmsteads are very high) are absorbing much of this net increase in the housing stock.
- 4.4 Work for English Heritage stressed that high levels of demand coupled with a planning regime that restricts development may lead to (disproportionate) increase in the price of property in a particular area. It demonstrated a marked tendency for residential units in historic farms to be highly priced. This is particularly true of the High Weald AONB. Figure 4.3 shows the overall variation in the price of all residential property over the period of 2000 to 2004 as a whole. A value of 100 in this Figure would indicate that the price of a property at the location shown was identical to the average price of residential property across England as a whole. Across most of the study area (ie to the east of Haywards Heath and to the north of Heathfield), residential property values are generally substantially higher than across England as a whole.
- 4.5 More significantly, the English Heritage study pointed out that historic farm property is property is consistently substantially more expensive than all property within 10 kms around it (Figure 4.5 and 4.6). Thus, the average price of historic farm property is on average one and a half times that of all property within 10 kms. Generally, there seems to be little systematic variation in this differential with respect to all property, but in that part of the AONB north of Haywards Heath (in West Sussex within the High Weald AONB), where overall prices tend to be lower than elsewhere, the high prices commanded by historic farm property are sustained.
- 4.6 House prices are generally demand-driven and thus high prices tend to reflect high incomes among purchasers. The implication is that the property associated with historic agricultural features has a quite clear social role in providing housing for an elite. One manner in which this might be grasped is to assign the areas in which historic farm buildings are found to their place within a typology of 'ruralities'. This typology attempts to classify rural areas with respect to the 'openness' of their

commuting patterns and their degree of social mix (as discussed in Appendix Six). It is immediately apparent from Figure 4.7 that areas which are geographically unaligned, lacking in social mix and with over-representation of professional categories cover much of the AONB.

- 4.7 This aspect of the current social role of such historic agricultural buildings in the study area might be further demonstrated by considering their role in providing homes for directors of substantial companies (ie those with a turnover of more than £1.5 million). Inevitably, historic agricultural buildings tend to share their full unit postcode with other properties near-by. Thus, the 2,640 historic agricultural buildings (in the High Weald AONB) that are associated with unit postcodes encompass 22,602 properties in total<sup>2</sup>. This larger group of properties provide the home addresses for 8,698 directorships of substantial companies. There are, therefore, 38 substantial company directorships for every 100 households in this group.
- 4.8 For historic farm buildings and their immediate neighbours, the number of company directorships per 100 households differs little with the type of match, as shown in Table 4.1. (A detailed discussion of types of match is provided in Appendix Three). This demonstrates that the evidence for this particular aspect of the social and economic role of historic agricultural buildings is not sensitive to particular technical issues inherent in the methods used in this study.
- 4.9 The extent of such directorships, implying a significant degree of control over business, must be understood in the context of the broader social role of this part of south-east England. As indicated in Figure 4.8, if all property is considered rather than historic farm buildings and their immediate neighbours, across much of the study area, there are more than 16 company directorships per 100 households. This figure reaches 80 in parts of the AONB such as areas to the north-west of Haywards Heath and around Crowborough. The intensity of engagement with substantial business in the North West of the AONB perhaps defines a particular economic subarea with a very distinct role as discussed below.

Table 4.1: Company directorships at unit postcodes associated with historic agricultural buildings

	Entire English Heritage Study			High Weald AONB Portion		
	Directorships	Properties	Directorships per 100 households	Directorships	Properties	Directorships per 100 households
Exact match	16,560	47,026	35	4,925	11,964	41
Indexical match	3,630	11,781	31	928	2,622	35
Possible match	10,542	34,615	30	2,845	8,016	35
<i>All</i>	<i>30,732</i>	<i>93,422</i>	<i>33</i>	<i>8,698</i>	<i>22,602</i>	<i>38</i>

<sup>2</sup> While the unit postcodes forming within our director data are accurately recorded, the recording of the full address is not entirely satisfactory. It would be possible in principle to match at individual property level, though because of the resource implications of address data quality this was not undertaken in this study.

- 4.10 Within the present piece of work it has been possible to move one step further than in the English Heritage study and to consider the business linkages of residents of historic farm property in more detail. Figure 4.9 shows the geographic pattern of the headquarters (registered offices) of those substantial businesses of which High Weald AONB residents are directors. Given the geography of business, it is not surprising that these ties are predominantly to London. There are, however, substantial businesses headquartered in the AONB and 324 (of 5,082) directorships held by High Weald residents. (Residents of historic farm property hold 150 directorships of substantial companies with registered offices in the High Weald AONB (of 2,479 such directorships in total)). While local directors certainly have a stake in substantial High Weald business their orientation is predominantly outside the area.
- 4.11 There may therefore be value in distinguishing amongst High Weald residents generally -and amongst those living in historic farm property in particular- a group marked by a high degree of enterprise with London ties, and another group running (smaller) local business. The tendency to a high degree of engagement in home-based business by residents of historic farm property was noted in Section 3. It should be appreciated that the group focussed on substantial business and London ties are predominantly in the north and west of the AONB where involvement in home based business- as evident in Section 3 is relatively low. This corresponds broadly to the area of highest house prices as shown in Figure 4.6.
- 4.12 Although the pattern of work travel linkages cannot be analysed with as much precision as can directorship linkages, they are consistent with the discussion above. Restricting analysis to census output areas that include historic farm property, it appears that roughly 30% work within the AONB itself (see Figure 4.10 and Table 4.2). Roughly one in five work in London. The evidence of the 2001 Census is also that High Weald residents tend to live at relatively long distances from their place of work even given the relative remoteness of some locations (particularly in East Sussex).
- 4.13 Long distances separating home and work are characteristic of professional workers, and may frequently be associated with hot desking and periods working from home. It is therefore possible that long travel distances are compensated for by less frequent travel. One implication of the high residential desirability of locales such as the High Weald AONB, however, is that those in well-paid work may choose to live there despite long work journeys. One way of deepening understanding of this is to consider how far the average work journey distance recorded in the 2001 Census differs from that which might be expected given the pattern of workplace opportunities implied by the settlement pattern.
- 4.14 Figure 4.11 shows how actual work travel distance varies from an expectation based on geographic structure. (The nature of these expectations is explained in Appendix Nine). Here increasing shades of red indicate a tendency to travel further than structure might suggest, while increasing intensity of blue shade indicates the reverse. Overall the AONB shows travel distances longer than expected (albeit that this tendency is nowhere as marked as in the southern suburbs of Tunbridge Wells outside the designated area. Areas with lower travel distances tend to be downmarket neighbourhoods within urban areas.

4.15 In summary, therefore, work undertaken since completion of the English Heritage report sharpens understanding of the current economic and social role of historic farm property considerably. While underscoring the general picture of affluence and enterprise, it sheds some light on less obvious aspects of economic activity. It draws attention to the distinction between participation in substantial companies which tends not to be accompanied by engagement with home based business, and involvement in smaller scale business activity. Moreover, in illuminating aspects of small scale home-based activity, it also shows the extent to which advantage is taken of environmental assets, and the role of such business in shaping the current pattern of land use and landscape in the High Weald. Finally the distinctions between these different types of business involvement have a clear geographic outworking illustrated in Figure 4.12. There is an evident separation between areas where the principal role of historic farm property tends to lie in providing homes for a business elite whose orientation is outside the High Weald) shaded purple) from those where such property forms the residential hub of smaller scale business activity (shaded pink).

Figure 4.1: Net change in dwellings (from PAF), 2000-2004, additional dwellings per km<sup>2</sup>, smoothed to 10kms

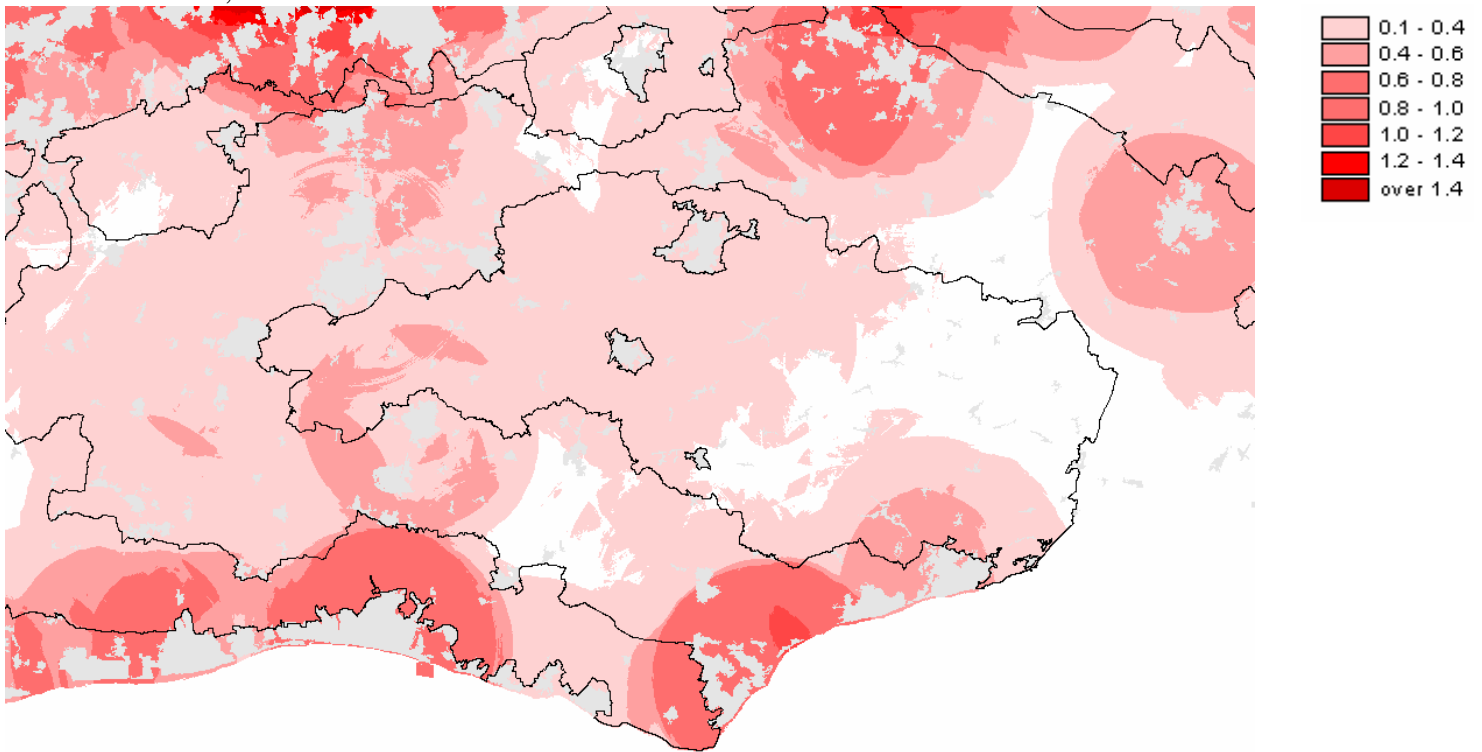


Figure 4.2: Net change in dwellings (from PAF), 2000-2004, additional dwellings per km<sup>2</sup>, smoothed to 2kms

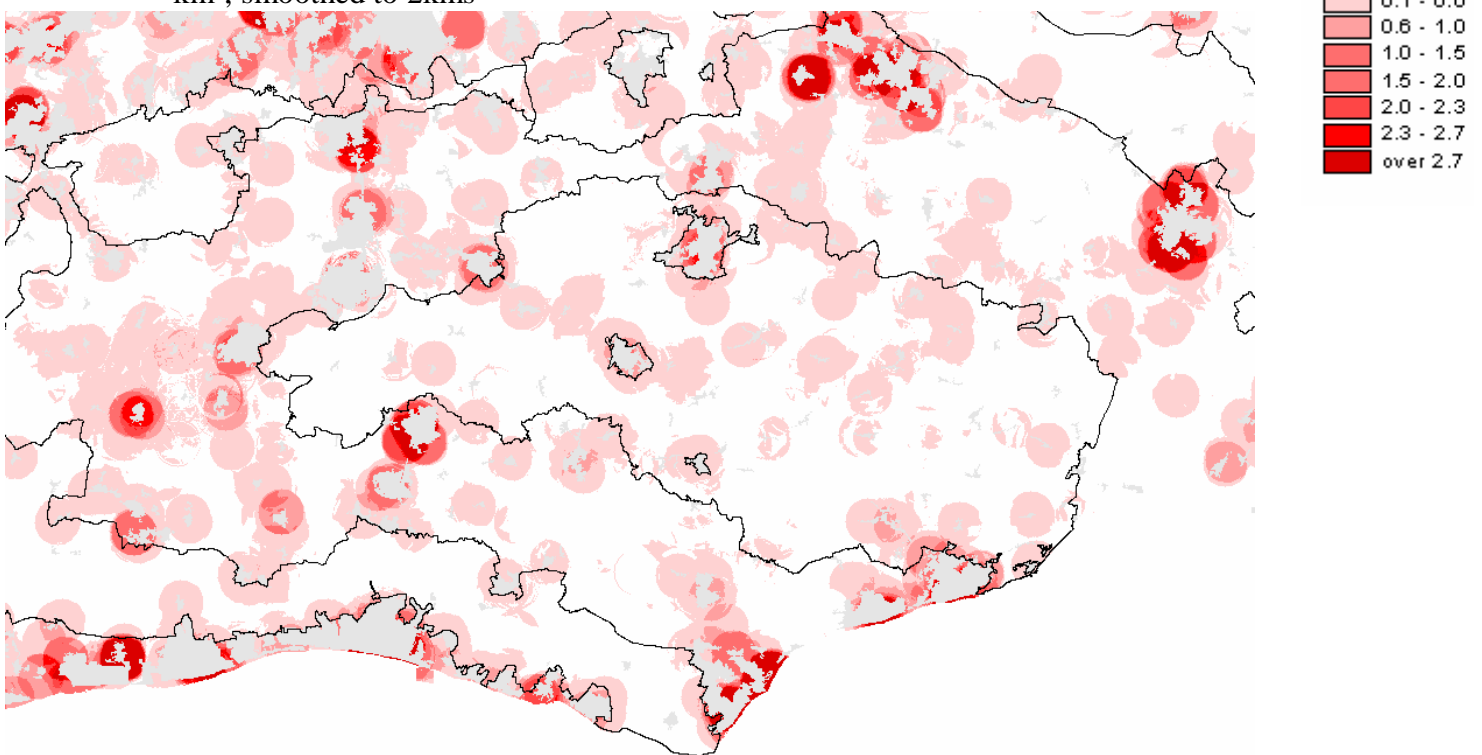


Figure 4.3: House Price Expressed Relative to the English Average (2000-2004), 10km moving average

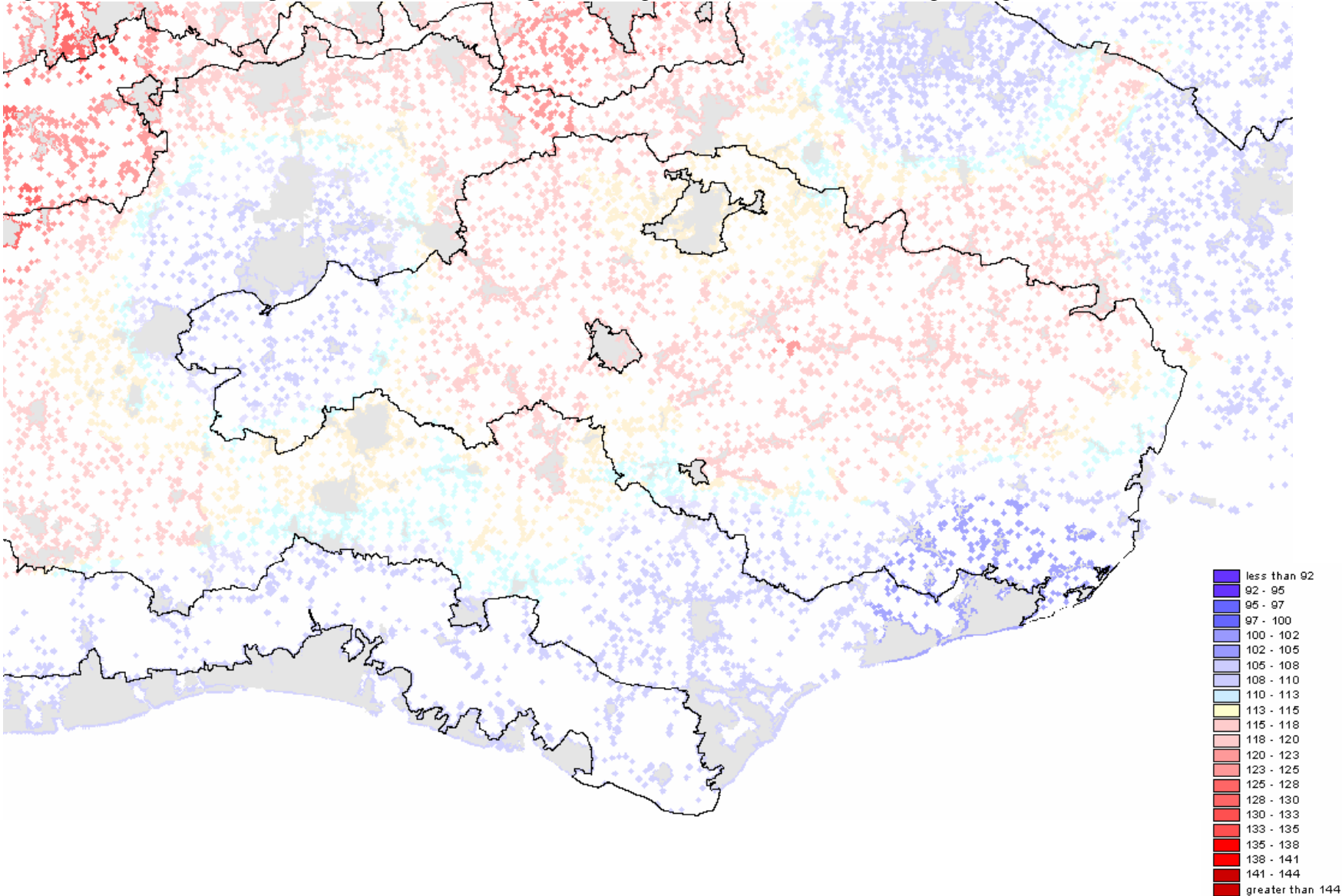


Figure 4.4: Price of Property associated with Historic Farm Features (2000 – 2004) relative to the English Average

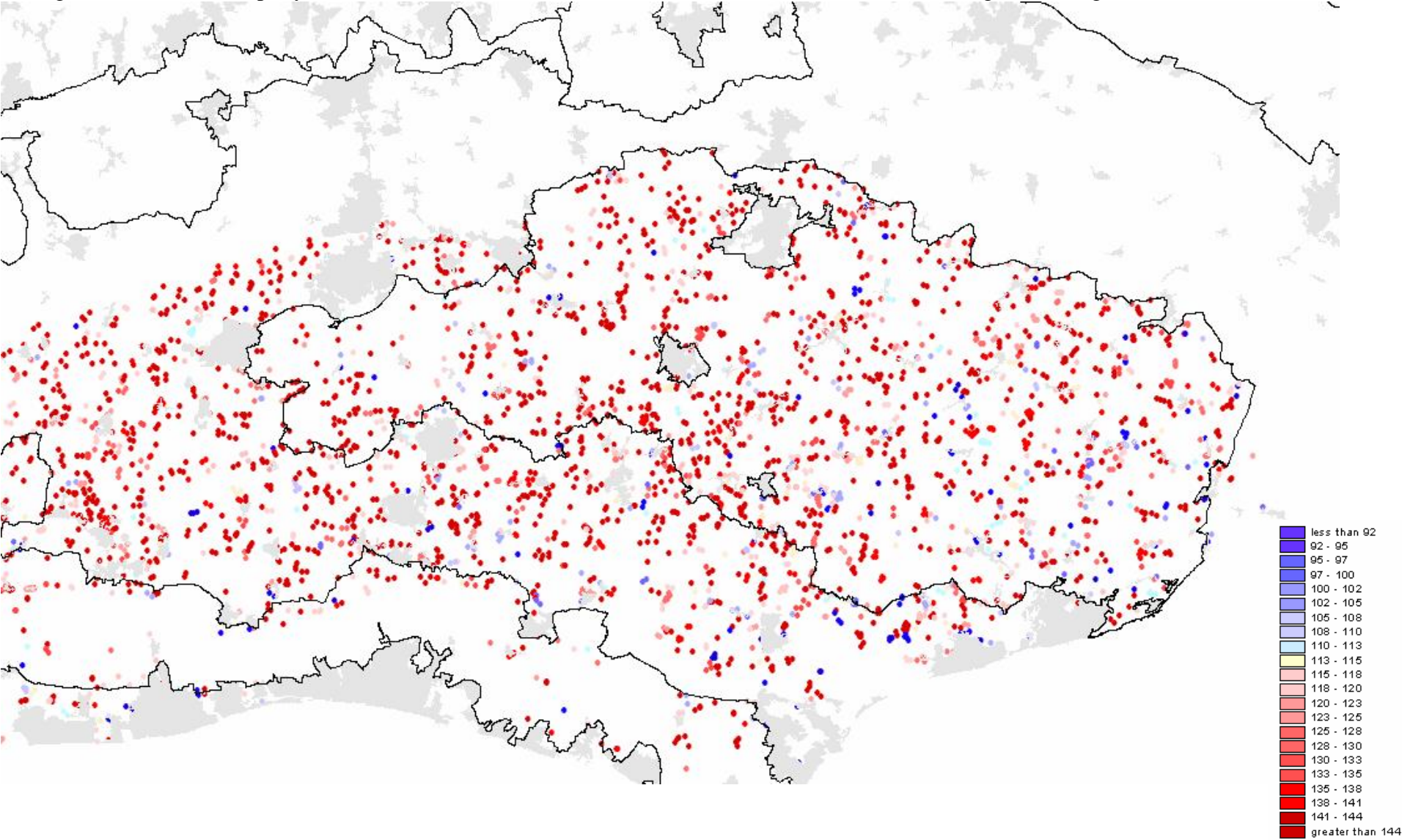


Figure 4.5: Price of Property associated with Historic Farm Features as a Proportion of all Property within 10 kilometres

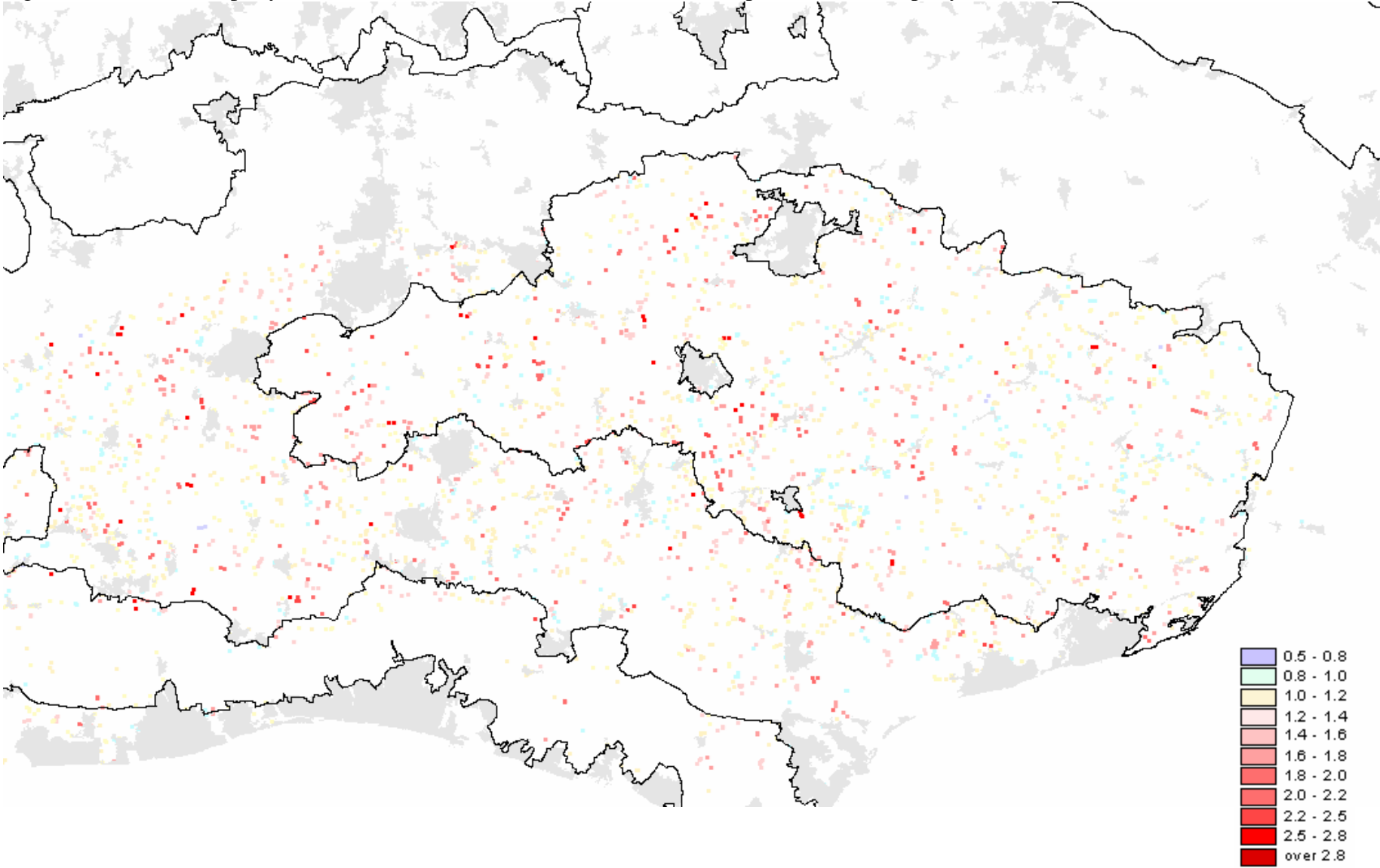


Figure 4.6: Price of Property associated with Historic Farm Features as a Proportion of all Property within 10 kilometres, smoothed to 2kms

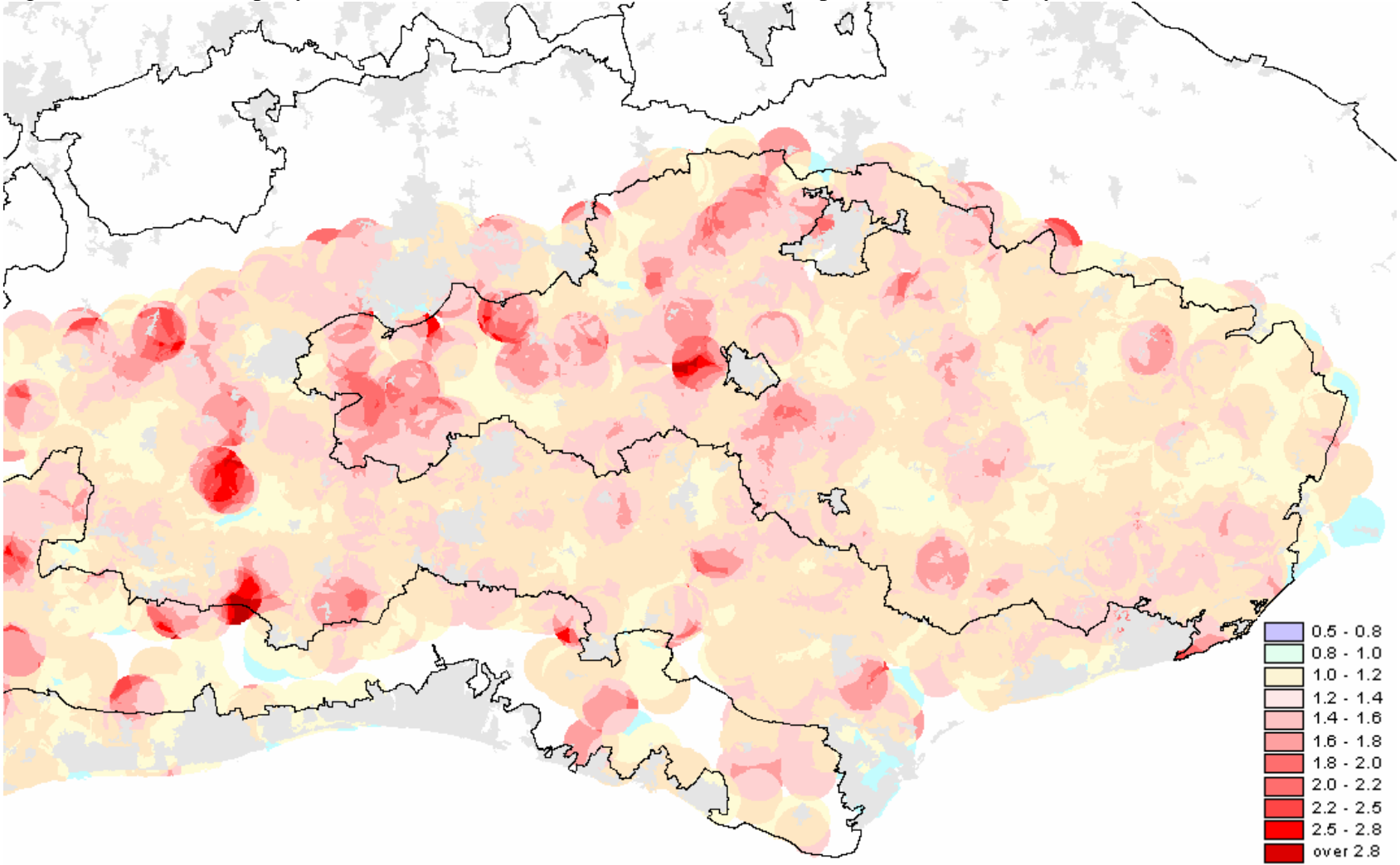


Figure 4.7: Position of Property Associated with Historic Farm Features relative to an Experimental Typology of English 'Ruralities'

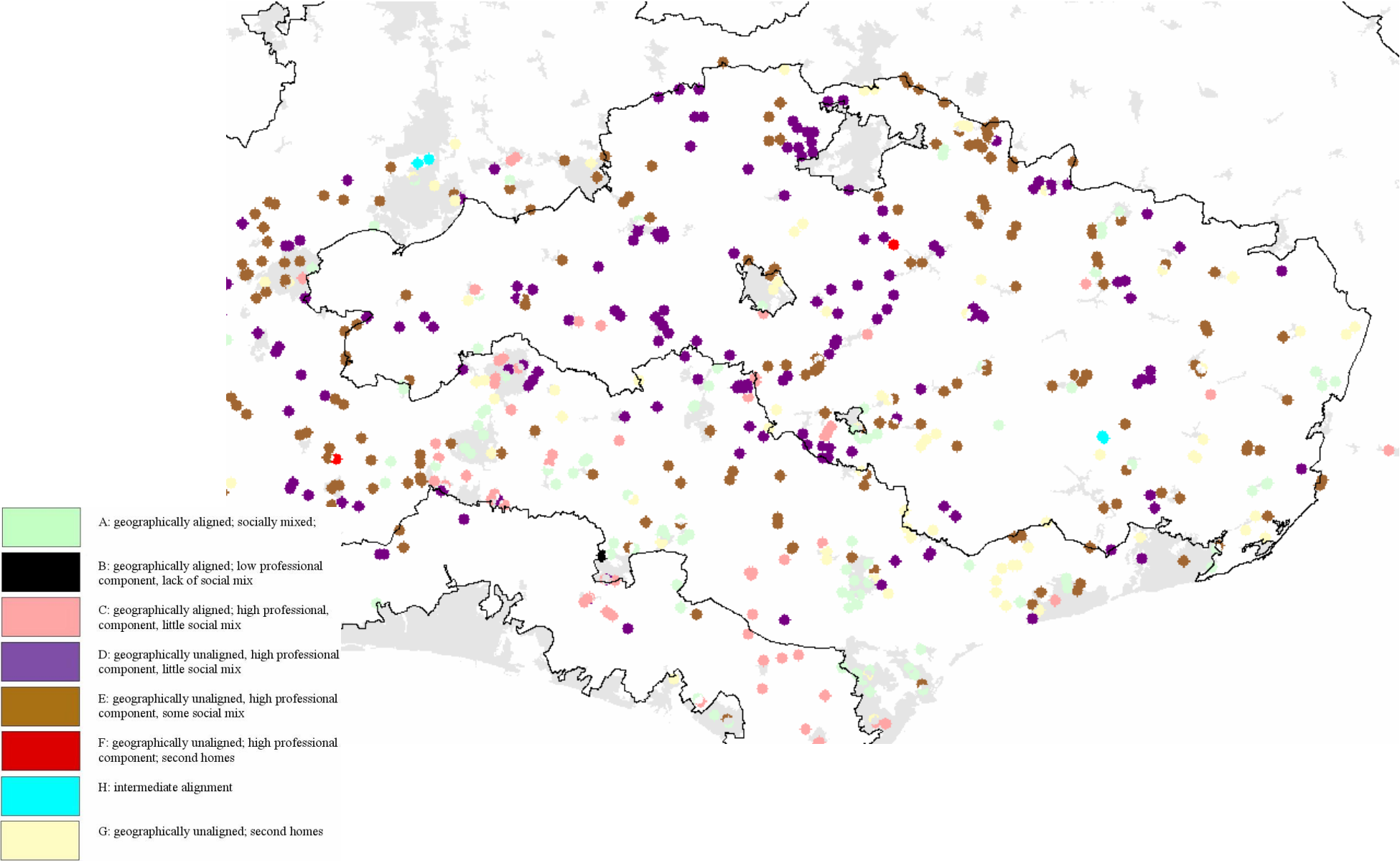


Figure 4.8: Directorships of substantial companies per 100 households (rural areas only)

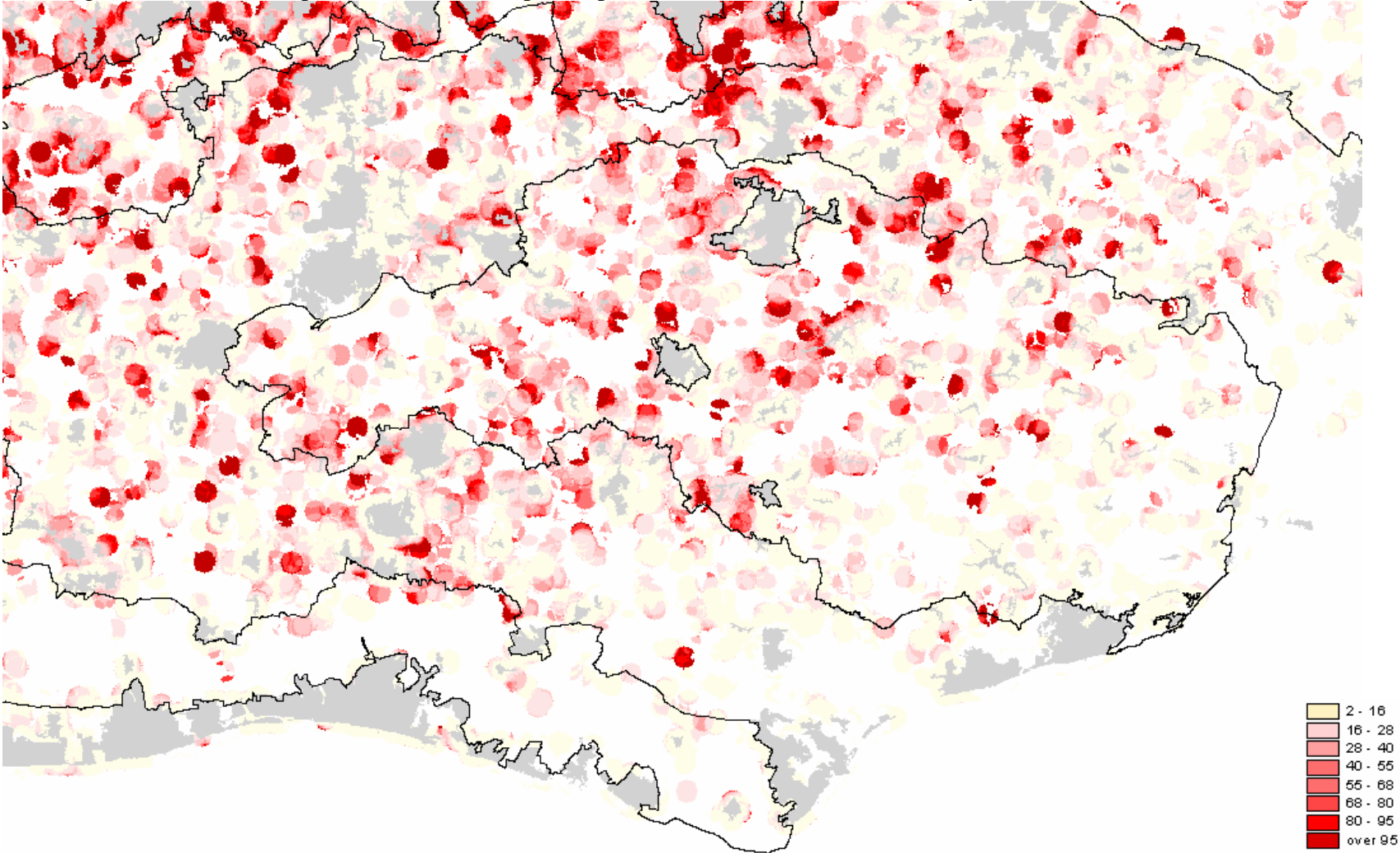


Figure 4.9a: Location of Registered Offices for Directors Residing in the High Weald (2km smoothing)

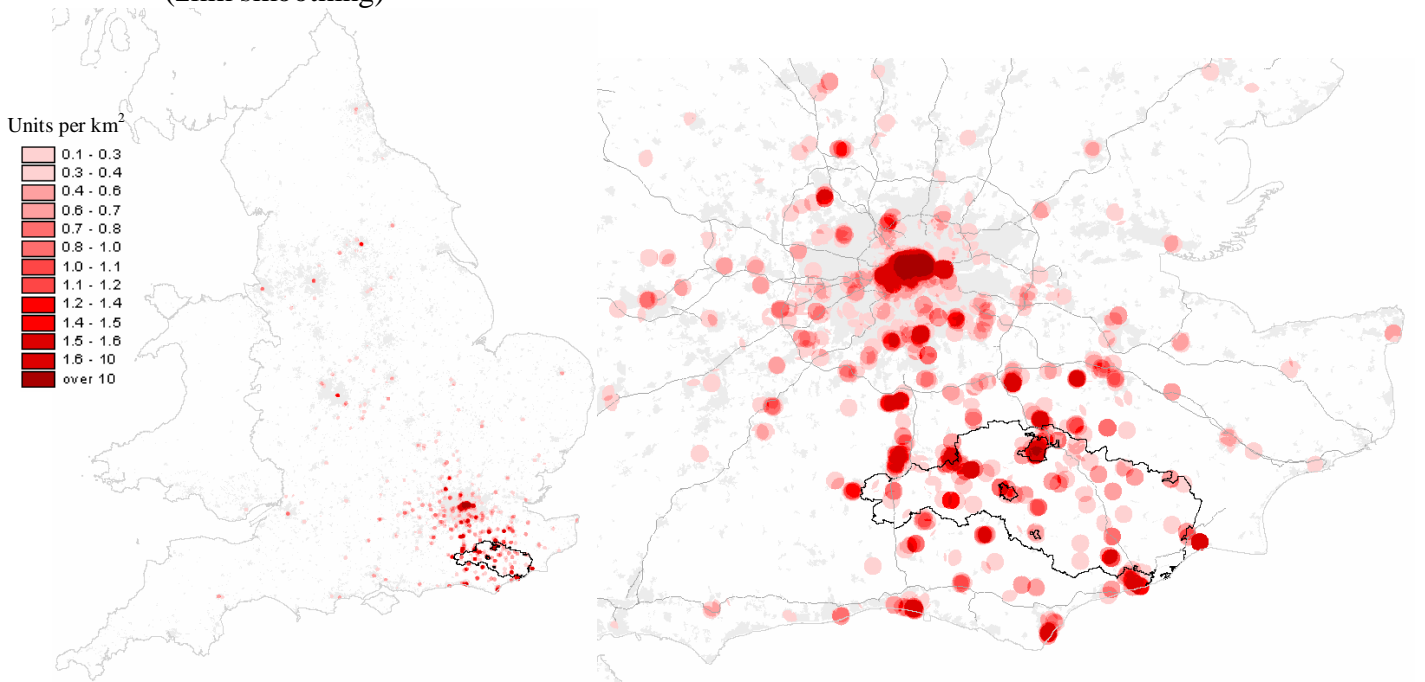


Figure 4.9b: Location of Registered Offices for Directors Residing at Postcodes Containing Historic Farms in the High Weald (2km smoothing)

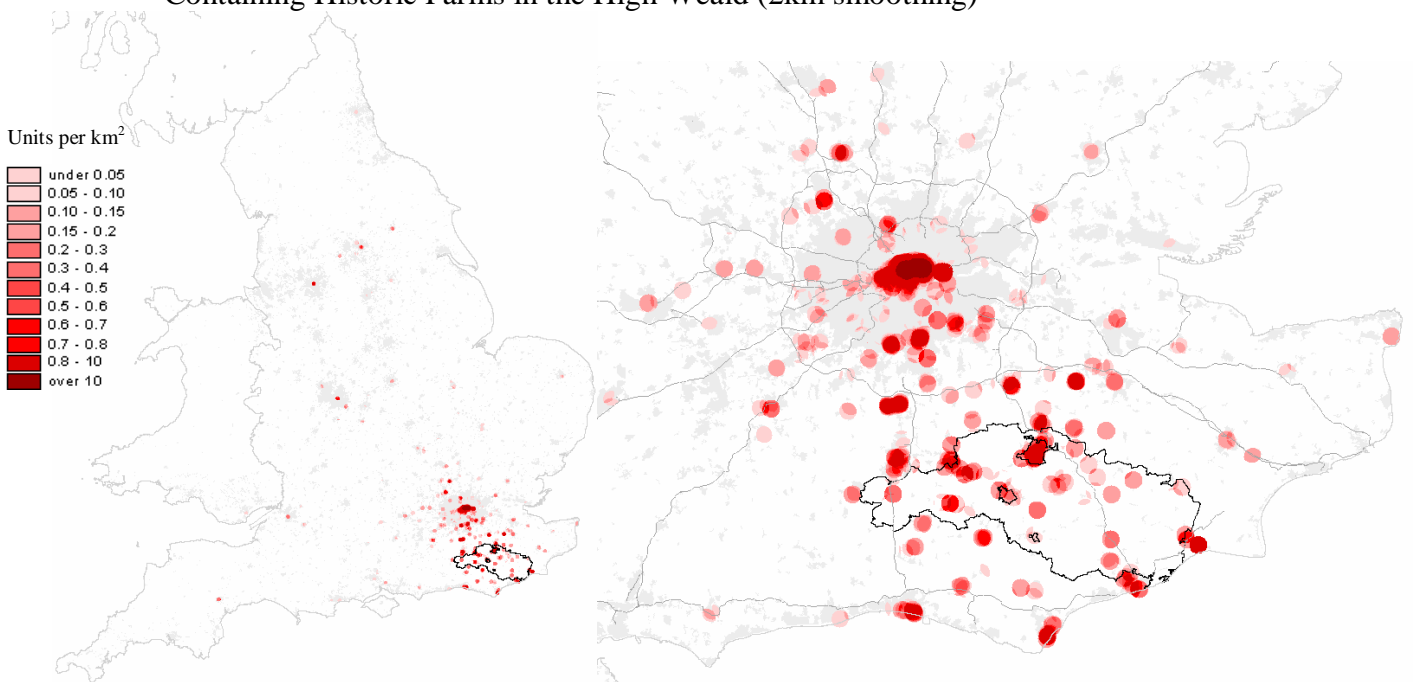


Figure 4.10: Work Place Location of Residents of Output Areas with Historic Farm Property in the High Weald (800 metre smoothing)

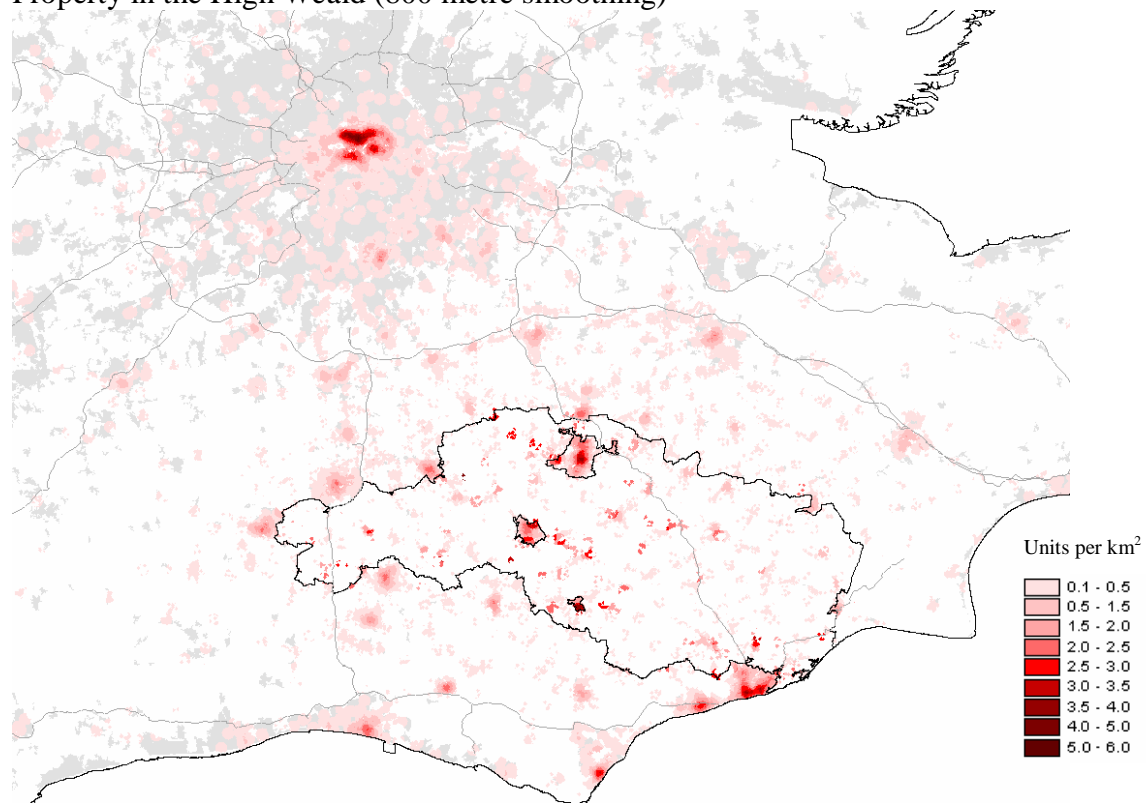


Table 4.2: Work Place Location of Residents of Output Areas with Historic Farm Property in the High Weald

<b>Within High Weald AONB:</b>		(%)
OS settlements within HW	298	2.4
Other HW	3,508	27.9
<b>Named OS settlements:</b>		
Greater London	2,418	19.3
Hastings (and Bexhill)	594	4.7
Royal Tunbridge Wells	332	2.6
Crawley	282	2.2
Brighton and Hove	270	2.1
Eastbourne	186	1.5
Maidstone	117	0.9
Crowborough	111	0.9
Horsham	111	0.9
Tonbridge	108	0.9
Heathfield	105	0.8
<b>Other OS Settlements:</b>		
Outside HW but within 10km	1,024	8.2
Further than 10km from HW	812	6.5
<b>Areas Outside OS Settlements:</b>		
Outside HW but within 10km	1,340	10.7
Further than 10km from HW	945	7.5
<b>TOTAL</b>	<b>12,561</b>	<b>100.0</b>

Figure 4.11: Work Travel Distance: differences from expectations

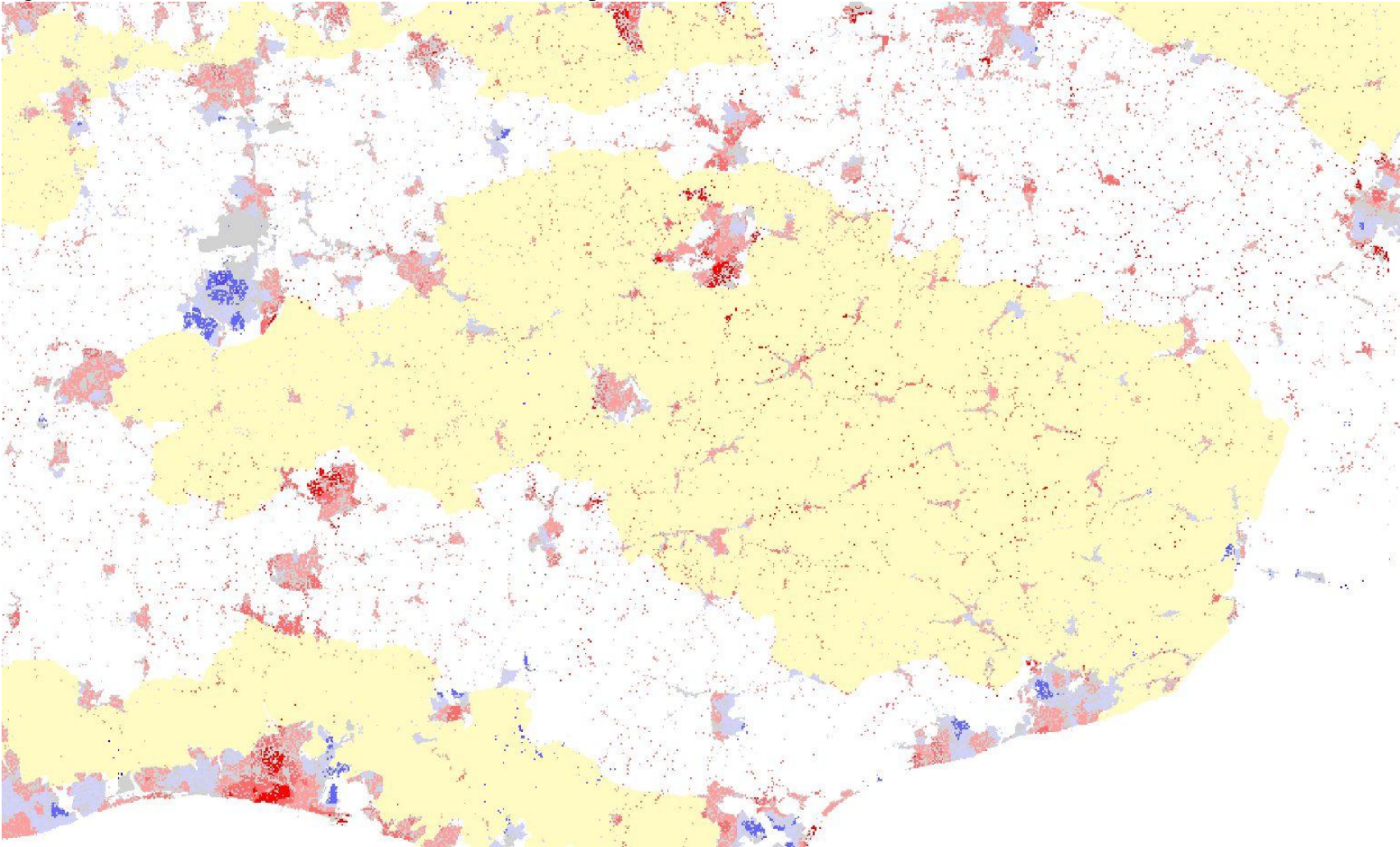
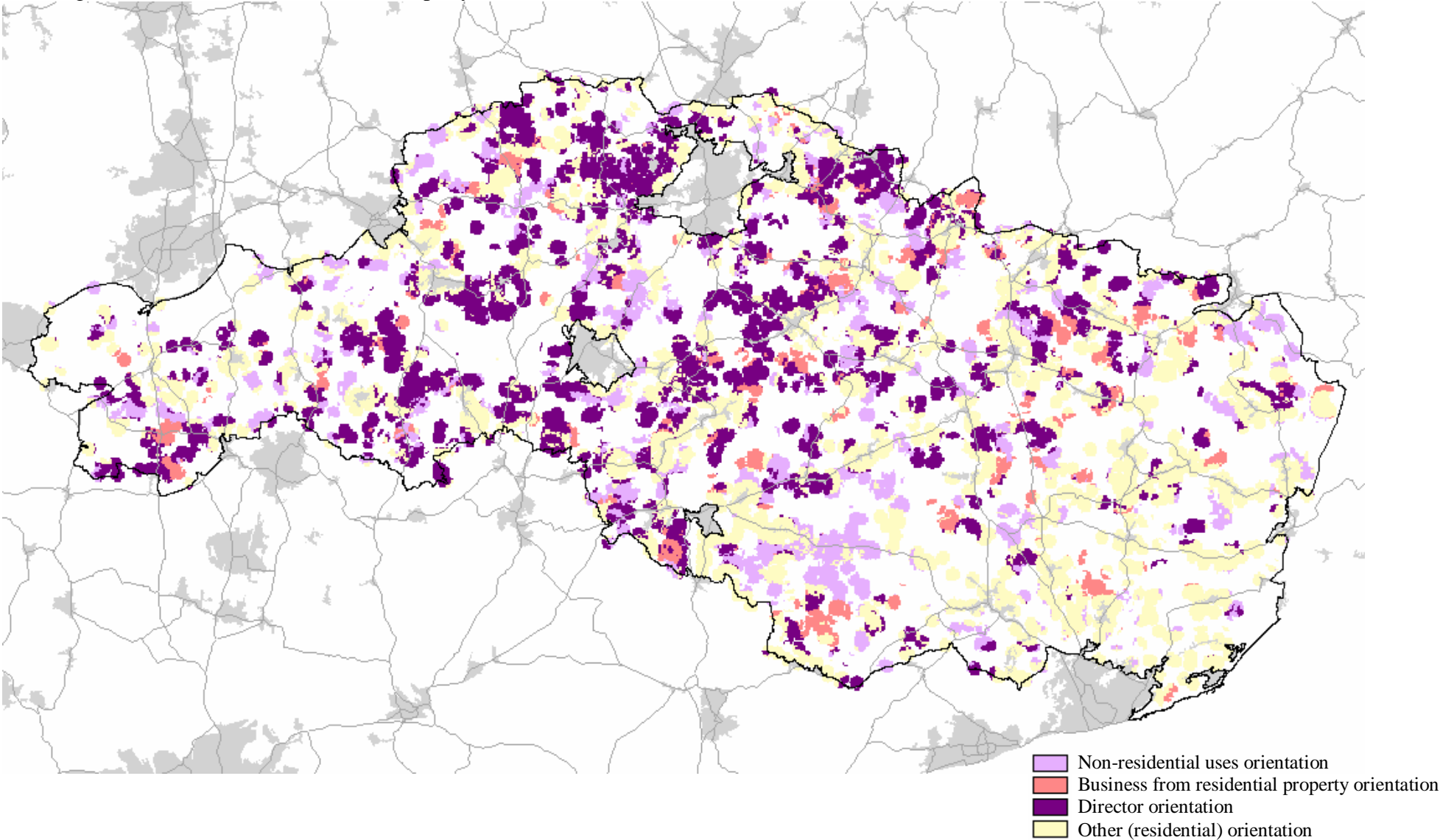


Figure 4.12: Role of Historic Farm Property



## 5. ACCOMODATING ADDITIONAL HOUSEHOLDS: NEW BUILD AND INTENSIFICATION

- 5.1 Across the study area, the pattern of physical development is generally tightly regulated through the planning system and the effects of this regulation are evident in the variation in the intensity of residential development recorded in LUCS. Recent work undertaken by the University of Sheffield for Natural England (Bibby and Brindley, 2007) examining rates of development in the period since 1985 provides evidence which tends to confirm the effectiveness of this regulation.
- 5.2 The English Heritage report focussed on development over the period between 2000 and 2004, As evident in Figure 5.1 urban areas - as might be expected-, showed higher rates of new development than areas within the AONB. Within the AONB, higher rates are found in principal settlements such as Battle, Forest Row and Hawkhurst than elsewhere.
- 5.3 It is possible to consider (albeit in a gross manner) the characteristics of residential development associated either with current or historic settlement patterns. Table 5.1 shows variation in the density of new development between historic settlement types. (For this purpose, particular LUCS sites have firstly been associated with specific historic features and secondly classified in accordance with their historic settlement type as recorded by English Heritage (and show in Figure 5.3)).
- 5.4 Not surprisingly, The English Heritage report showed that new development within the immediate environs of historic farm property tends to be particularly constrained, and these generally low rates of development are evident in Figure 5.2. LUCS provides very little evidence of new development around historic farm features (Figure 5.2), implying that any net change in numbers of residential or non-residential addresses in such locations tend to arise out of intensification of use of existing buildings.

Table 5.1: Development 2000-2004 by Historic Settlement Types in the High Weald AONB

	<b>LUCS build 00-04 (units)</b>	<b>LUCS build 00-04 (has)</b>	<b>Density of LUCS build</b>	<b>Dwellings 2004</b>	<b>% Growth in dwellings, 00-04</b>
FC	4	2.89	1.4	454	0.9
HAM	156	16.78	9.3	3724	4.2
ISO	151	65.16	2.3	11,488	1.3
PARK	8	3.63	2.2	689	1.2
VILL	156	13.18	11.8	5,880	2.7

- 5.5 The extent of intensification of use of existing property depends upon the supply of existing buildings and the structure of demand having regard to desired size of residential units. Where planning policy is very stringent, areas of land released for new residential development are limited and overall pressure for demand is high, there

tends to be pressure for conversion from non-residential uses and for sub-division of existing residential property. (This is true of much of Greater London for example, see Bibby and Brindley, 2006c). It may hold true for some protected areas eg the Peak District and the Lake District (Bibby and Brindley, 2006c and Bibby and Brindley, 2007). Even in areas of very high residential desirability, such intensification should not however be necessarily expected as the flow of existing property may be more modest and demand may be disproportionately for larger units.

- 5.6 Recent work for Natural England (Bibby and Brindley, 2007) shows that between 1998 and 2003 there was no net residential intensification in the High Weald AONB. Over that period new building added 1,430 units (equivalent to 3.1% of stock). The net increase in the number of dwellings over that period was only 1,345 units (2.9% of stock), implying that losses of dwellings due to demolition and amalgamation of properties to form larger homes exceeded the increase due to new building and conversion.
- 5.7 This finding however should not be taken to imply that conversion of farm property to residential use has not been taking place within the High Weald AONB. Indeed, it appears that the number of residential properties addresses as ‘X Barn’ increased by 31% over the same period (see Table 5.2) (Bibby and Brindley, 2006b). This suggests that at least 63 units were converted from agricultural to residential use over that period, implying in turn a greater offsetting loss of residential units through demolition or more likely amalgamation of existing properties to create larger dwellings.

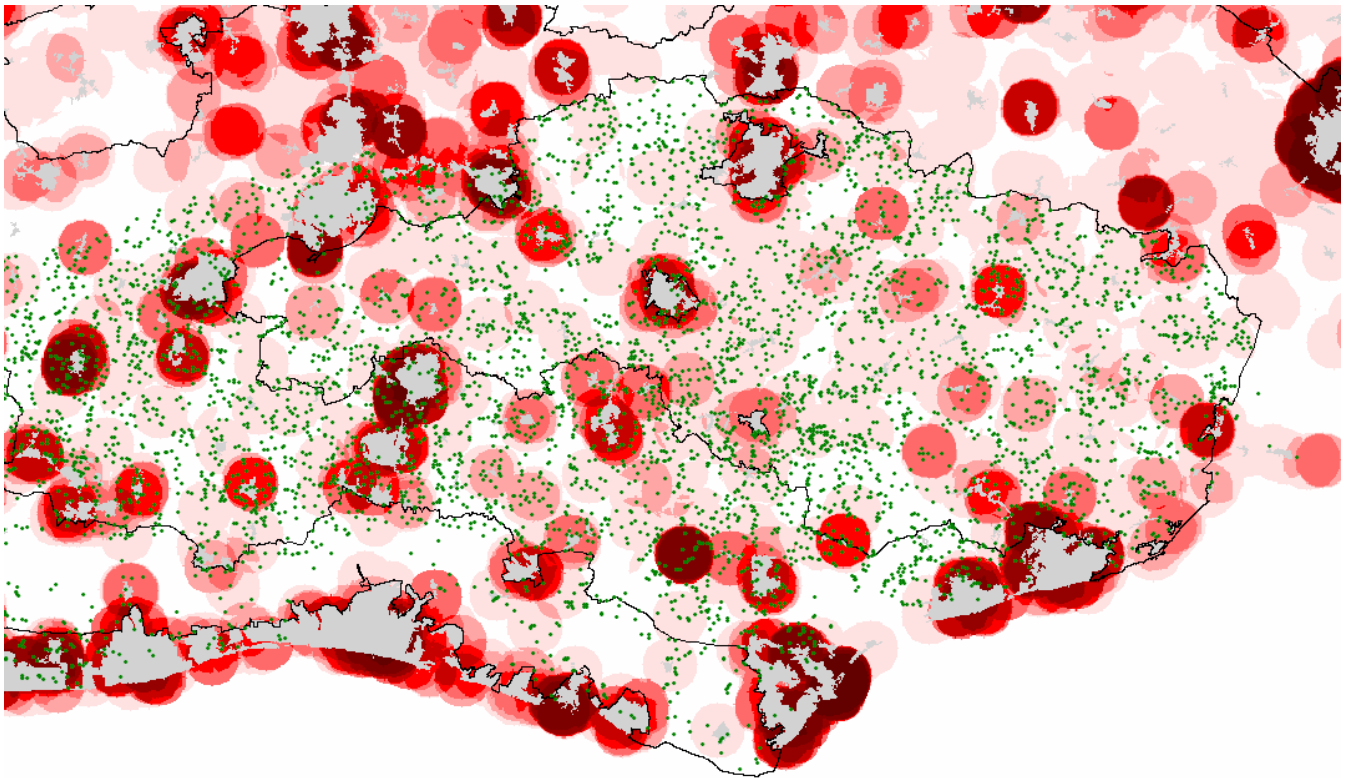
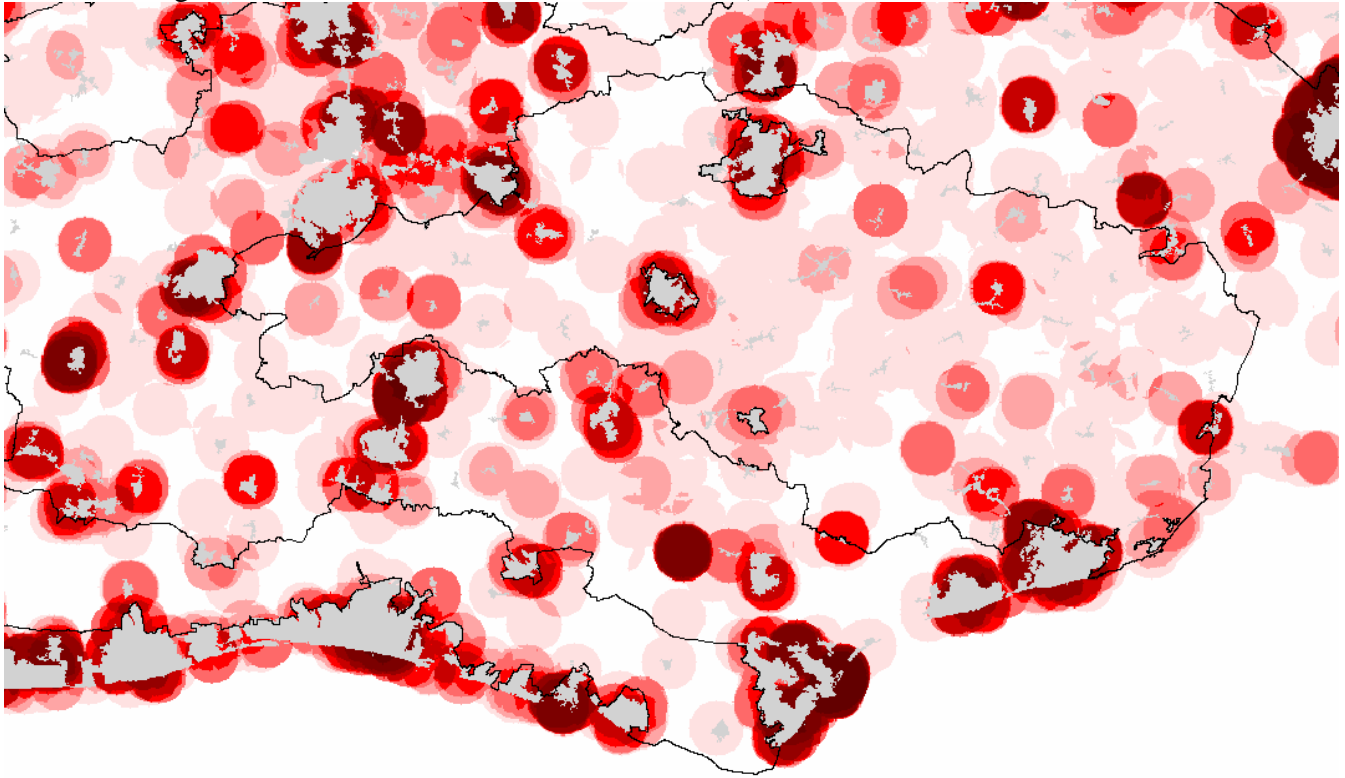
Table 5.2: Indicators of Conversion of Barns to Residential Use

	High Weald AONB	Area of Outstanding Natural Beauty Total:	All Protected Areas Total	England
Barn property 1998	204	1,797	2,211	9,988
Change in barn property 98-03 (units)	63	536	655	3,932
Change in barn property 98-03 (% of barn property)	<b>30.88</b>	<b>29.83</b>	<b>29.62</b>	<b>39.37</b>
Change in barn property 98-03 (% of dwelling stock)	0.14	0.12	0.12	0.08
Barn property in isolated farms and hamlets 1998	104	712	897	3,243
Change in barn property in isolated farms & hamlets 98-03 (units)	34	268	334	1,692
Change in barn property in isolated farms & hamlets 98-03 (% of barn property)	<b>32.69</b>	<b>37.64</b>	<b>37.24</b>	<b>52.17</b>
Change in barn property in isolated farms & hamlets 98-03 (% of dwelling stock)	0.59	0.68	0.66	0.76

This Table is based on grids prepared for the *Countryside Quality Counts* project. The data and methods used are discussed in the report *Land Use Change at the Urban: Rural Fringe and in the Wider Countryside* (Bibby and Brindley, 2006b), available on the world wide web at <http://www.cqc.org.uk/publications/LandUseChange-Report.pdf>

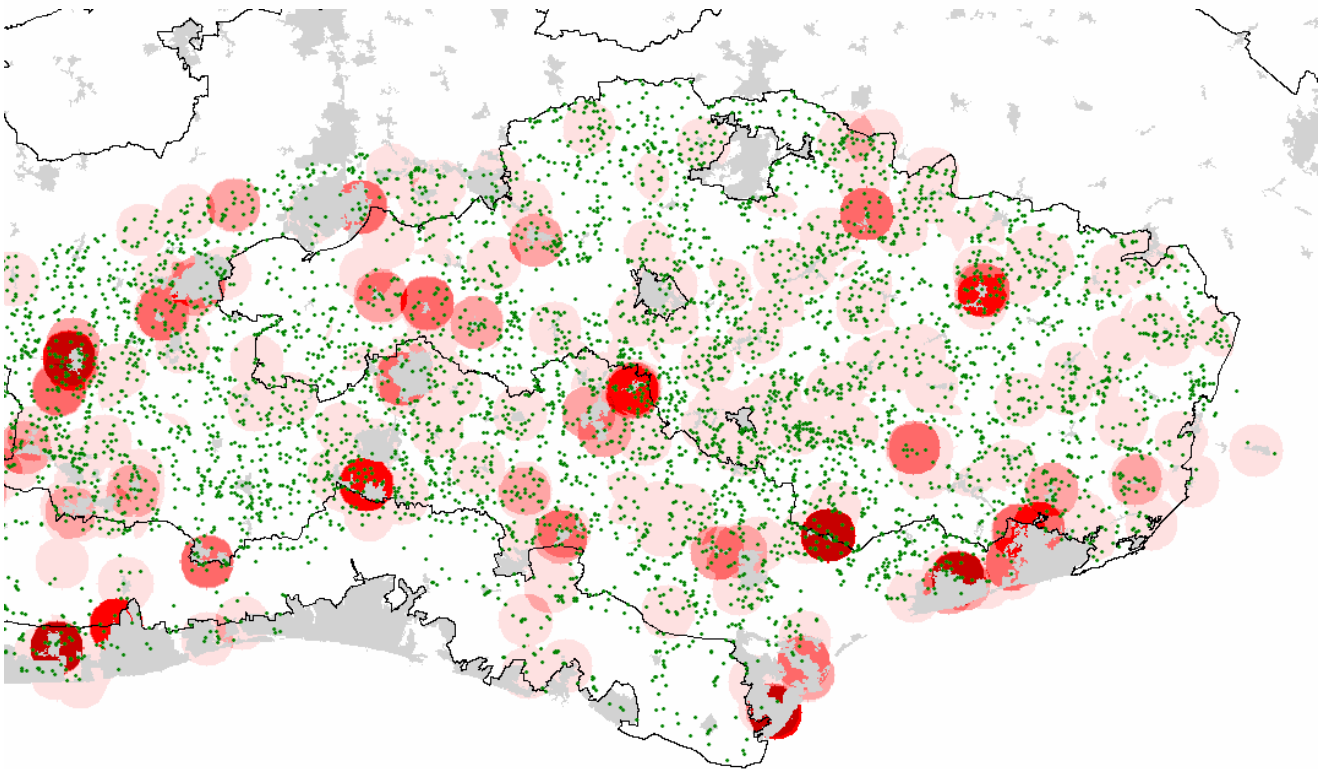
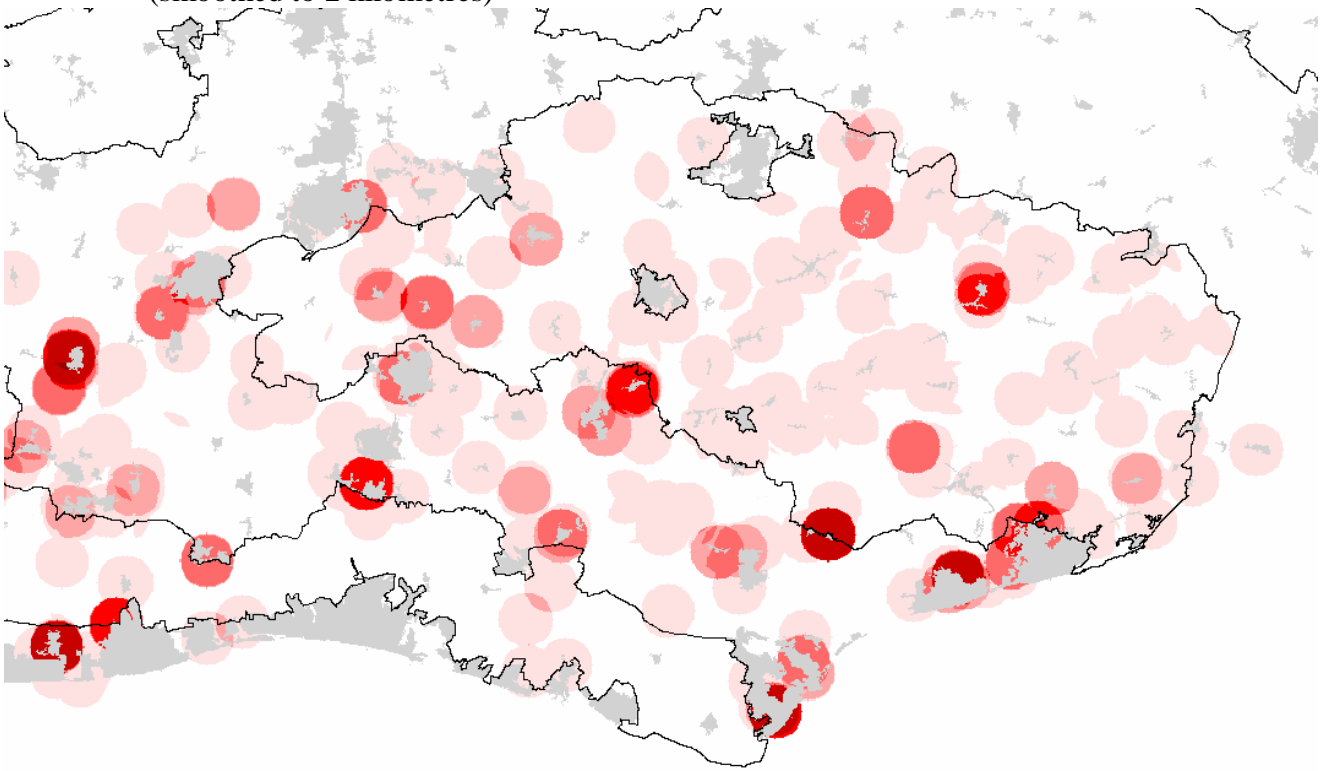
- 5.8 Across England as a whole the period between 1998 and 2003 appears to be one marked by a very high rate of barn conversion. As indicated there was a significant increase in converted barn property in the AONB over that period, though the rate of conversion appears less than that typical of England as a whole.

Figure 5.1: All New Residential Construction (smoothed to 2 kilometres)



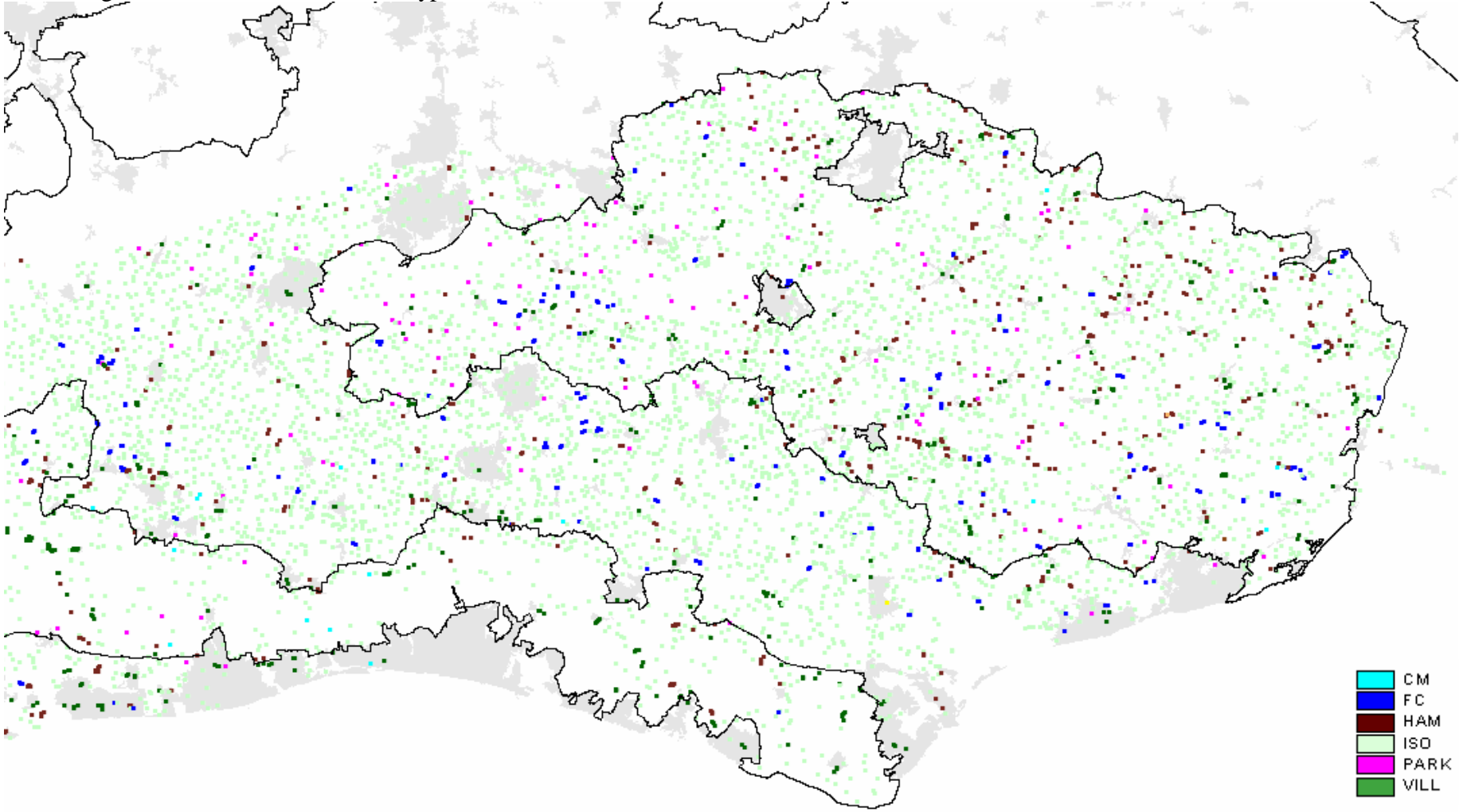
Green points denote the location of historic features

Figure 5.2: All New Residential Construction adjoining Historic Farmsteads (smoothed to 2 kilometres)



Green points denote the location of historic features

Figure 5.3: Historic Settlement Types



## 6. SERVICE ENDOWMENT

- 6.1 Recent work undertaken at the University of Sheffield has concerned itself with geographic variation in the relationship between stocks of various kinds of businesses and the residential base of localities. This work has attempted to estimate a statistical relationship between the numbers of dwellings (for example) within 800 metres of any point and numbers of shops at that point.
- 6.2 This work produced an empirical equation for estimating an expected number of shops for each hectare cell within the rural domain. (The term rural domain is used to refer to that set of Census Output Areas classified as rural for the purposes of government's rural strategy). Across the rural domain as a whole, the number of shops (Y) may be estimated as:

$$Y = -0.0027 + 1.7358*[\text{Hotels}] - 1.7253*[\text{Hlets}] + 0.0188*[\text{Hds}] + 0.1122*[\text{Shomes}]$$

*where:*

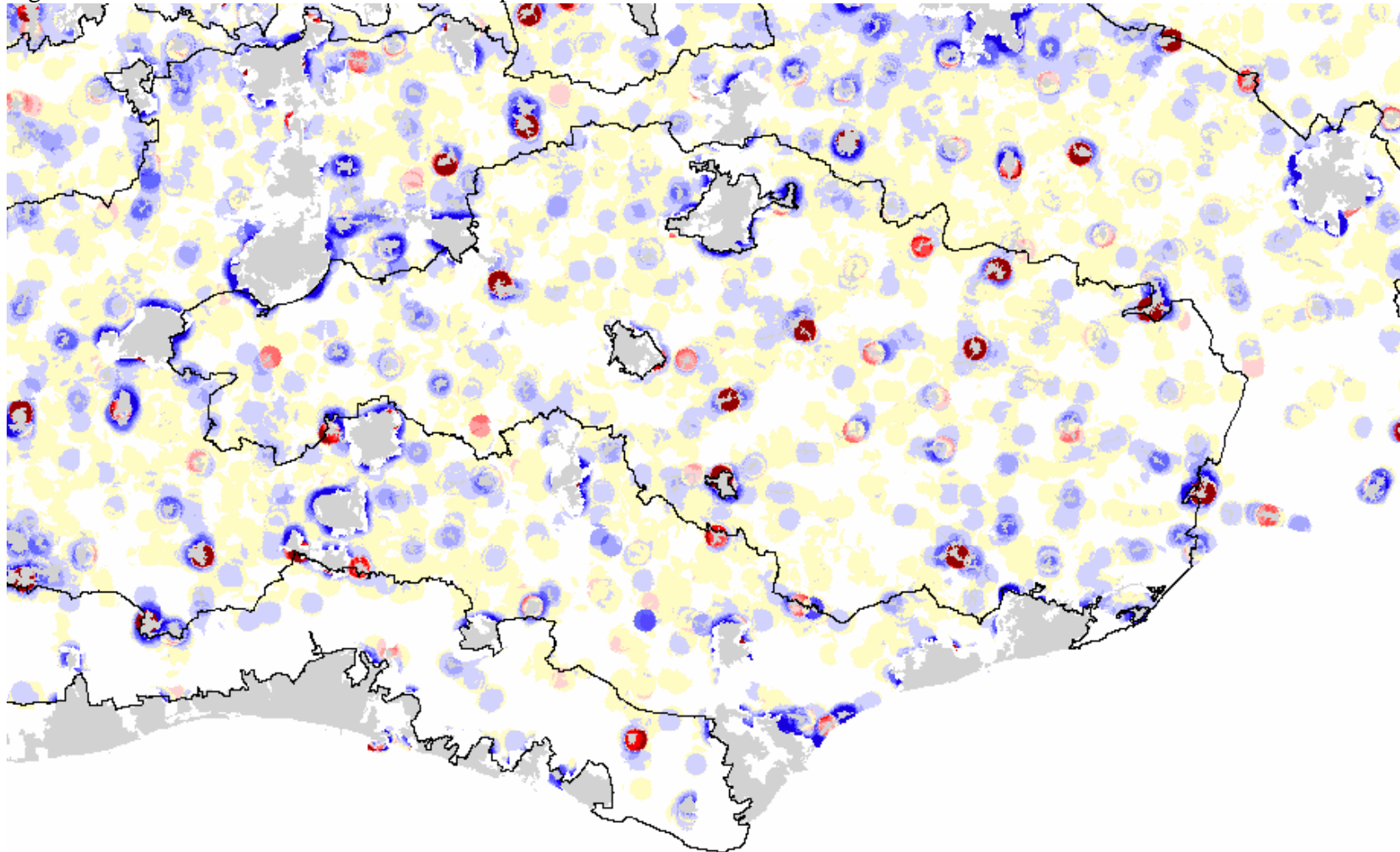
- Hotels is the number of hotels within 800 metres
- Hlets is the number of holiday lets within 800 metres
- Hds is the number of households within 800 metres
- Shomes is the number of second homes within 800 metres

- 6.3 To estimate the equation, the location of shops, holiday lets and hotels was assessed from individual commercial rating information, provided by the Valuation Office Agency. Information on households in hectare cells was assembled using the postcode headcount file for individual unit postcodes for the 2001 Census. Estimates of second homes in each hectare cell were constructed by subtracting the number of households in the cell from a measure of the number of dwellings (residential delivery points recognised by the Post Office), having also made an allowance for a normal vacancy rate of 2%.
- 6.4 The equation points to a simple relationship between the number of households and the number of shops, such that within the rural domain one might expect 0.0188 shops for every household within 800 metres. Hotels appear to support shops so that 1.7358 shops might be associated with each hotel within 800 metres. Second homes are also seen as supporting shops, although holiday lets do not.
- 6.5 It is important to appreciate that this expression does not attempt to take any account of the settlement hierarchy and is intended to assist in consideration of 'local' provision. It must be understood that the expression averages out provision in villages for example (which will be over-estimated) and provision in small service centres (which will be under-estimated). For this reason, it only accounts for 45.8% of the variability of numbers of shops.
- 6.6 The practical value of the expression lies principally in allowing exploration of the variability around the expectations generated by the equation (Figure 6.1). Settlements may be classified according to the extent to which their endowment of shops exceeds or falls short of this expectation. Those settlements where numbers of shops most

clearly exceed these expectations are Hawkhurst and Cranbrook. Battle and Mayfield stand out clearly as having service cores. The service cores of Wadhurst and Forest Row stand out and are clearly distinguishable from the remainder of those settlements. Smaller settlements of Goudhurst, Rotherfield and Handcross also appear to have a more substantial retail offer than anticipated. At the base of the settlement hierarchy, Sheffield Park (near Uckfield) appears to have more retail than might have been expected.

- 6.7 A number of nucleated settlements appear however, to have fewer shops than might have been expected. Amongst these are Balcombe, Horsted Keynes and West Hoathley/Sharpethorne towards the west of the AONB. Towards the eastern extremity of the AONB, Rye Foreign, Sedledcombe, Icklesham and Westfield also seem to have fewer shops than might have been expected. The under-endowment of shops in Speldhurst should be understood in terms of its position to its neighbouring Tunbridge Wells.
- 6.8 Generally, the High Weald AONB is distinctive in its dispersed settlement structure, and in the small size of its nucleations. Such a geographic structure implies difficulties for substantial retailers in achieving economies of scale and hence they will inevitably be underrepresented. Small business will – to a degree fill the gap, though the extent of their engagement tends to vary with disposable income. Under such circumstances, outlets serving particular market niches tend to survive in more affluent areas, while retail uses will give way to residential use elsewhere. Within the High Weald AONB a series of small settlements listed in para 6.6 accommodate more retailers than their small size might suggest.

Figure 6.1: Service Endowment: relative to expectations



## 7. ACCESS TO SERVICES MEASURES

- 7.1 The deeply entrenched settlement structure, when considered alongside economies of scale in service provision implies potential problems in service access to basic services for people living in the High Weald AONB. Even though the discussion of Section 6 drew attention to settlements where numbers of retailers were greater than expected, this has no necessary implications for access to basic services.
- 7.2 This section is concerned with access to ten basic services: ATMs, banks and building societies, dentists, doctors' surgeries, petrol stations, post offices, primary schools, secondary schools and supermarkets. In all 6,462 facilities within these classes were identified.
- 7.3 The first step in assessing service access is the definition of a 30-km buffer around the High Weald AONB. All possible service points of interest are assumed to lie either within the AONB or within the buffer. The second step is identification of all facilities in particular classes that lie either with the AONB or within the buffer.
- 7.4 The third step is identification of each unit postcode within the High Weald AONB including one or more residential properties. There are 5,044 such postcodes embracing a total of 48,599 dwellings. The distance from every unit postcode to every facility was then calculated. This produces 5,044 lists each containing 6,462 distances, sorted to show distances to facilities nearest the dwellings first. An example of a complete list is provided in Appendix Ten. The list for postcode TN11 8HJ (the six dwellings on Donkeyfield, Leigh, Tonbridge) begins:

(tn118hj[[**393**.011, [atm], 6], [400.642, [petrol, station], 6], [434.115, [post, office], 6], [623.02, [primary, school], 6], [2614.36, [post, office], 6], [3182.86, [petrol, station], 6], [3198.17, [doctors, surgery], 6], [3227.09, [primary, school], 6], [3244.87, [post, office], 6], [3281.51, [post, office], 6], [3287.96, [atm], 6], [3313.63, [primary, school], 6], [3355.86, [doctors, surgery], 6], .....

indicating for example that the nearest ATM is **393** metres away, and that there are four *post offices* within 3.3kms. These lists will permit a range of further analyses including:

- (i) identification of the distance to the nearest facility of any type from any unit postcode
  - (ii) examination of the cases where the nearest facility to a particular group of dwellings falls short of an acceptable distance
  - (iii) examination of the number of facilities or extent of choice within an acceptable distance of a particular residential address
  - (iv) production of composite indicators of 'access'
- 7.5 This section reports on analyses of types (i), (ii), (iii) and (iv). The results of analyses of type (i) are perhaps most easily illustrated graphically (see Figure 7.1 a-h). They show the straight-line distance from each dwelling in the High Weald AONB to the

nearest member of a particular set of facilities. The colouring of each illustration shows shortest distances to a particular type of a facility relative to the typical distance for household in the High Weald AONB. Thus Figure 7.1a is concerned with distance to the nearest cash machine (ATM) . For households in areas shaded yellow, the distance to the nearest ATM is very similar to the average such distance for households in the High Weald AONB generally. In the areas shaded red, the distance to the nearest ATM is substantially shorter. Residents of areas shaded blue are furthest removed from ATMs, those around Northiam being more than 6km of a cash machine

- 7.6 The maps for each service use the same convention, of centring the scales around the average shortest distance (the class intervals being based on the standard deviations, which of course vary by facility type).

Table 7.1: Shortest Distances to Nearest Facilities

<b>Facility</b>	<b>Average Distance to Nearest Facility (metres)</b>	<b>Standard Deviation of Distance to Nearest Facility (metres)</b>
ATM	2226.21	1645.03
Bank, Building Society	3597.38	2340.18
Dentist	3247.48	1987.5
Doctors Surgery	2389.56	1780.81
Petrol Station	2315.86	1554.6
Post Office	1320.09	1164.35
Primary School	1095.24	862.58
Secondary School	4311.71	2232.37
Supermarket	4311.44	2507.13

- 7.7 This analysis can be taken a little further by combining these measures to produce a single index. The problem of combining them into a composite indicator is that of resolving how the distance to the various services should be weighted one to another. An obvious approach is to weight each facility by reference to the mean distances for that facility, so the distance to a facility from a particular place is assessed relative to the ‘normal’ or typical distance for *that* type of facility. (One would expect that the distance to the nearest secondary school would be greater than the distance to the primary school, for example. Table 7.1 shows that the average distance from a dwelling in the AONB to the nearest primary school is just over a kilometre, and that the average distance to a secondary school is over 4.3 kms).
- 7.8 On this basis, the measured distances from a particular group of dwellings to, say, an ATM can be transformed to z scores expressing this distance as a number of standard deviations away from the mean distance from all dwellings in the AONB to the nearest ATM. Once the measured distances to the nearest members of a particular class of facilities are all transformed in this way, the scores for each facility which refer to any particular residential postcode can be averaged to form a composite indicator. Thus converting the shortest distances from TN11 8HJ to the nearest facility in each of the class to z scores, one obtains:

<b>Facility</b>	<b>Distance</b>	<b>Z Score</b>
ATM	393.011	-1.11438
Bank or Building Society	4622.51	0.438054
Dentist	4167.24	0.462775
Doctor's Surgery	3198.17	0.454072
Petrol station	400.642	-1.23197
Post office	434.115	-0.76091
Primary school	623.02	-0.54745
Secondary school	3835.26	-0.21343
Supermarket	4167.24	0.053522
<i>Overall</i>		<i>-0.2733</i>

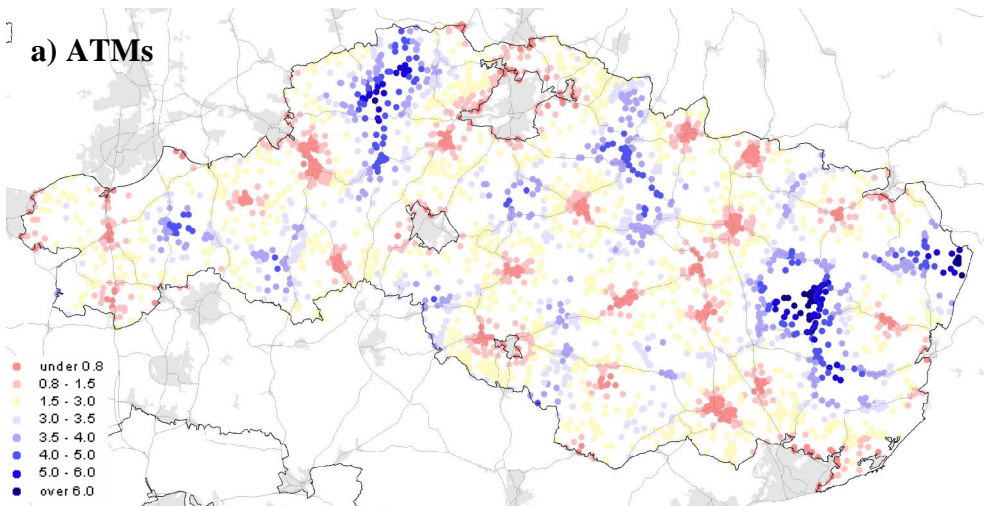
- 7.9 This shows that the set of shortest distances facing households living at TN11 8HJ are generally similar to those facing residents of the AONB as a whole. (None of the Z values are greater than +/- 2 and several are very close to zero). The composite measure for TN11 8HJ calculated as an average Z score is -0.27833, indicating that overall the distances to these key facilities are slightly less than across the AONB as a whole.
- 7.10 While this approach is sound, the resulting numeric values are not well suited to discussion. It is therefore convenient to scale them back to express them as if distances to a composite facility (typically 3.2km away from a household). Figure 7.3 shows this composite measure, highlighting the relative disadvantage of households in the area between East Grinstead and Tunbridge Wells.
- 7.11 Table 7.2 allows for comparison of the High Weald AONB with other areas of the country. Comparator figures for categories of settlement across England have been derived from CRC's *'State of the Countryside Report'* (2007). It is clear that the percentages of households falling within the various cut-offs are lower for the High Weald AONB than for Rural England as a whole. (The most appropriate comparators are particular morphological classes within 'less sparse' areas). Thus, while across Rural England generally, 71.4% of households will have a dentist within 4km, the corresponding figure for the High Weald AONB is 59.8%. Other differences are more modest. Hence while 87.5% of households across Rural England as a whole have access to a primary school within 2km, the corresponding figure for the High Weald AONB is 84.3%.
- 7.12 As emphasized above, these figures and differentials must be understood in relation to the historic settlement pattern of the High Weald. The morphological types shown in Table 7.2 show a clear pattern of variation with respect to service provision. Thus, in 'rural towns' 78.8% of households might be expected to have a bank or building society within 4km, though the corresponding figures for dispersed areas are lower (57.1%). The same systematic pattern of variation between 'rural towns' and 'dispersed settlement' is sustained across services. Generally speaking, the High Weald AONB faces some disadvantage in terms of service access but levels of access are higher than for dispersed areas in 'less sparse' areas of England overall.
- 7.13 It is instructive to compare the levels of service provision indicated by the composite measure (Figure 7.3) with the service endowment of places as discussed in Section 6. Not surprisingly, it tends to be those areas where settlement is most dispersed that

lack service centres and appear to have no offsetting access to services near-by. Such areas include the area around the B2026 north of Crowborough, between Nutley and Horsted Keynes and the sparsely populated area between Heathfield and Battle. Another such area lies in the eastern portion of the AONB including dispersed settlement around Broad Oak and Northiam.

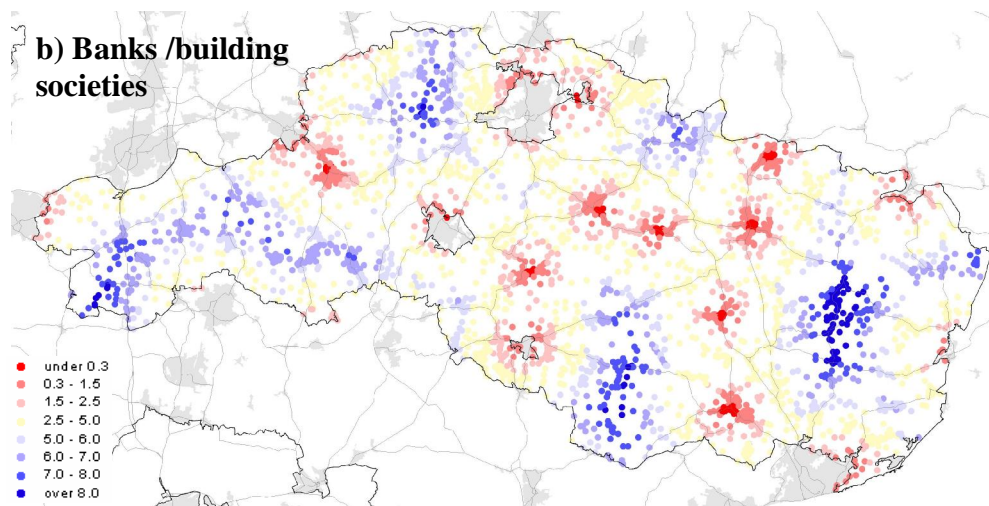
- 7.14 Balcombe in West Sussex provides a clear example of a nucleation, itself rather deficient in services where no offsetting access to higher levels of service provision exists. Localities where high local service endowment corresponds to good access to services include Forest Row, Wadhurst, Hawkhurst, Cranbrook, Mayfield and Battle. Hurst Green and Robertsbridge are smaller settlements where local service provision does not exceed expectation but access to services, more generally, is good. Local provision in Sedledcombe appears poor, but the service endowment of nearby Battle ensures that access to services is good.

Figure 7.1: Distance to Nearest Facilities

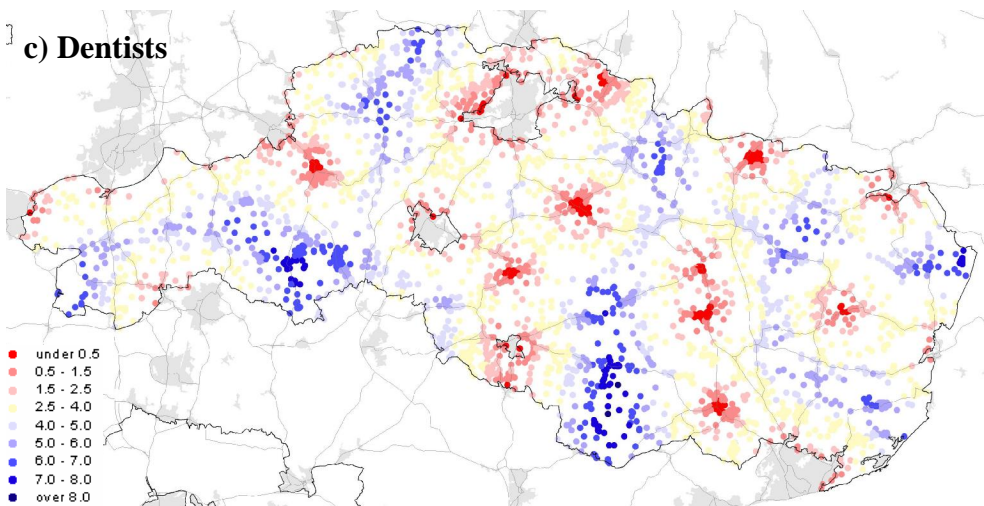
a) ATMs



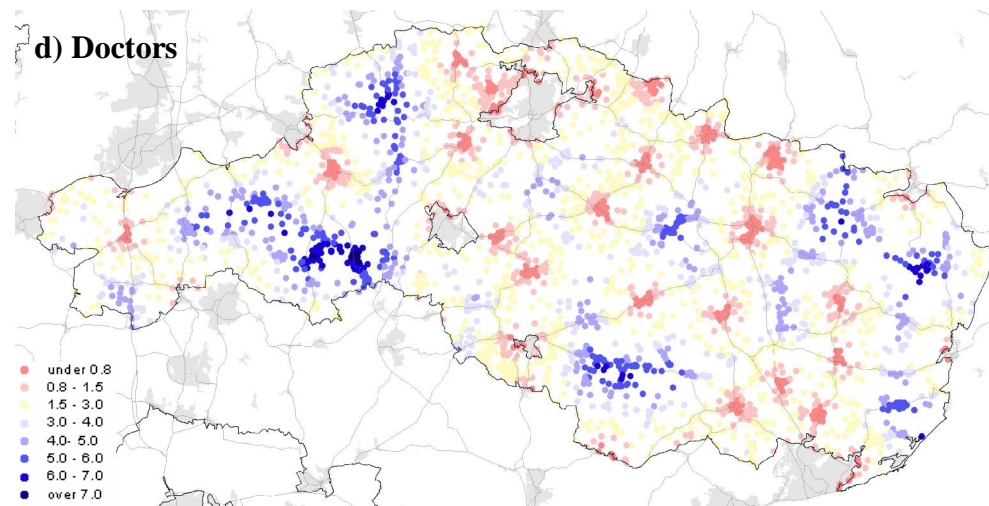
b) Banks /building societies



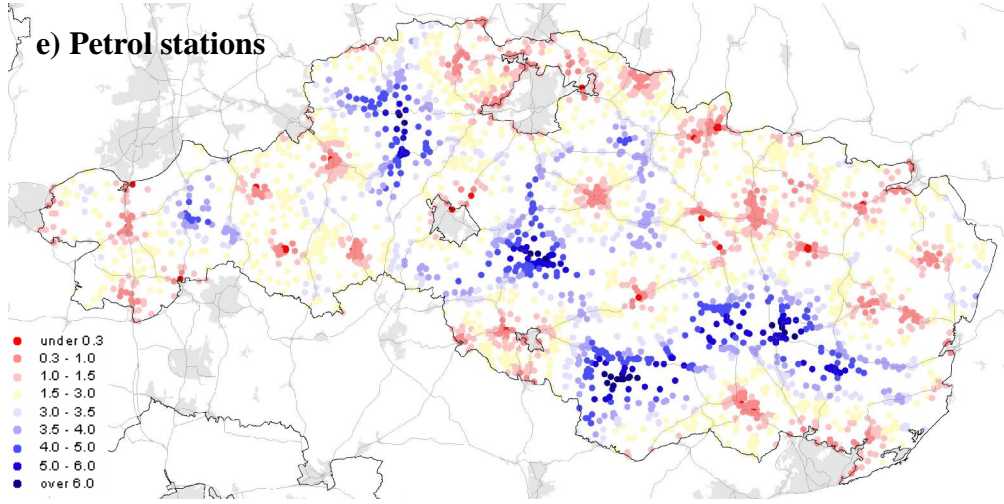
c) Dentists



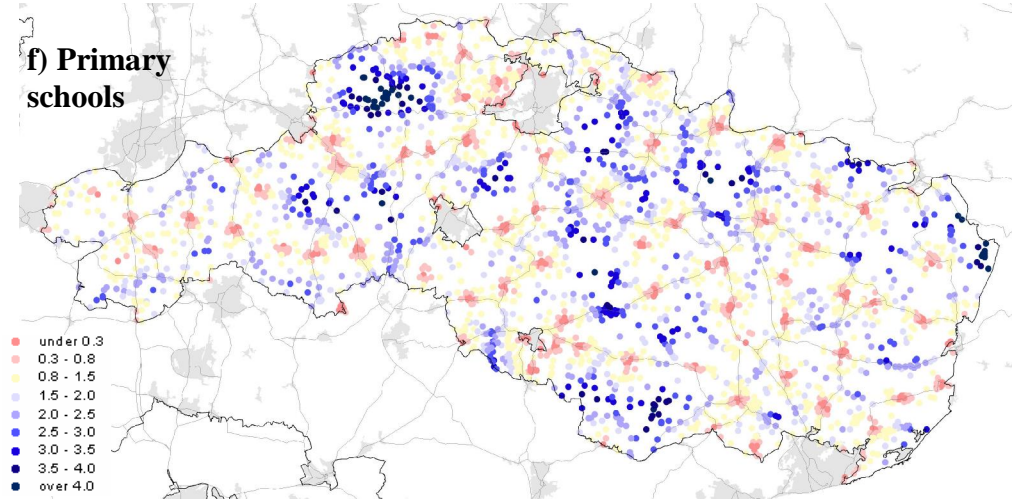
d) Doctors



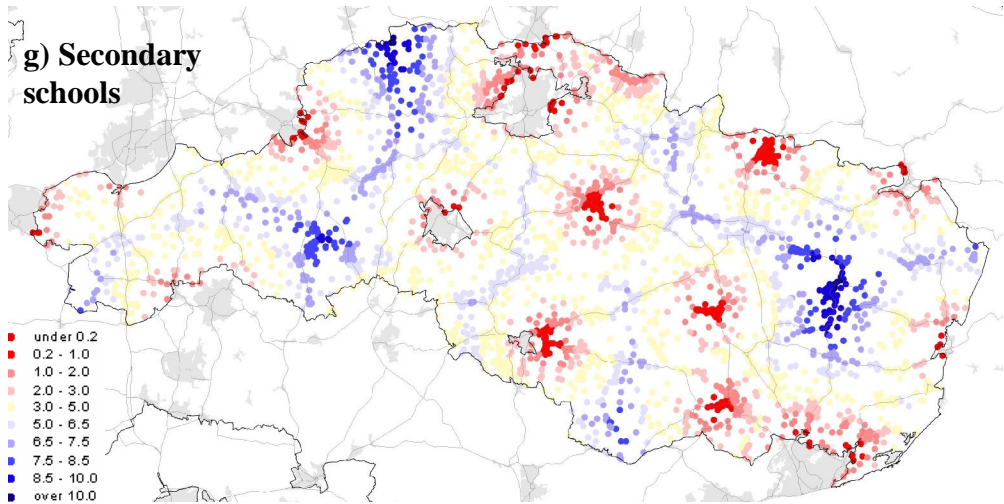
**e) Petrol stations**



**f) Primary schools**



**g) Secondary schools**



**h) Supermarkets**

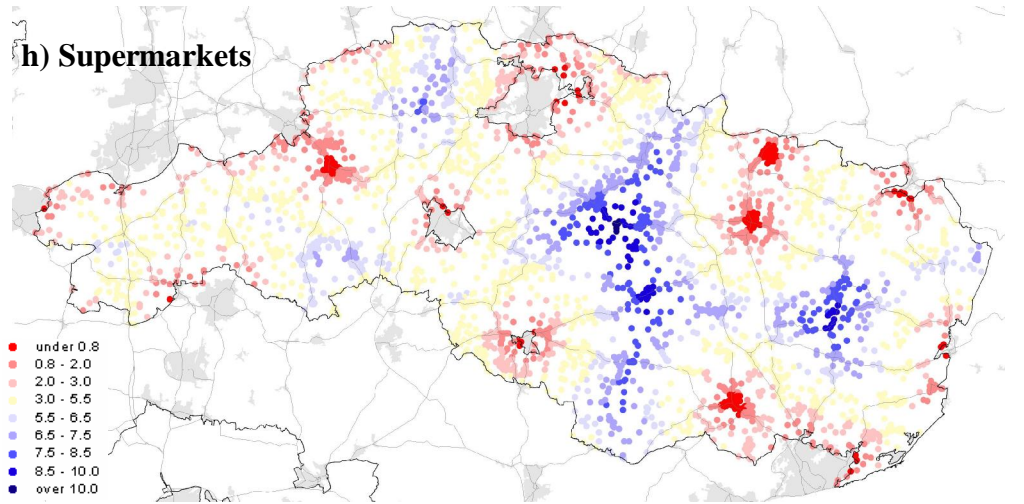


Figure 7.2: Distance to Nearest Post Office (km)

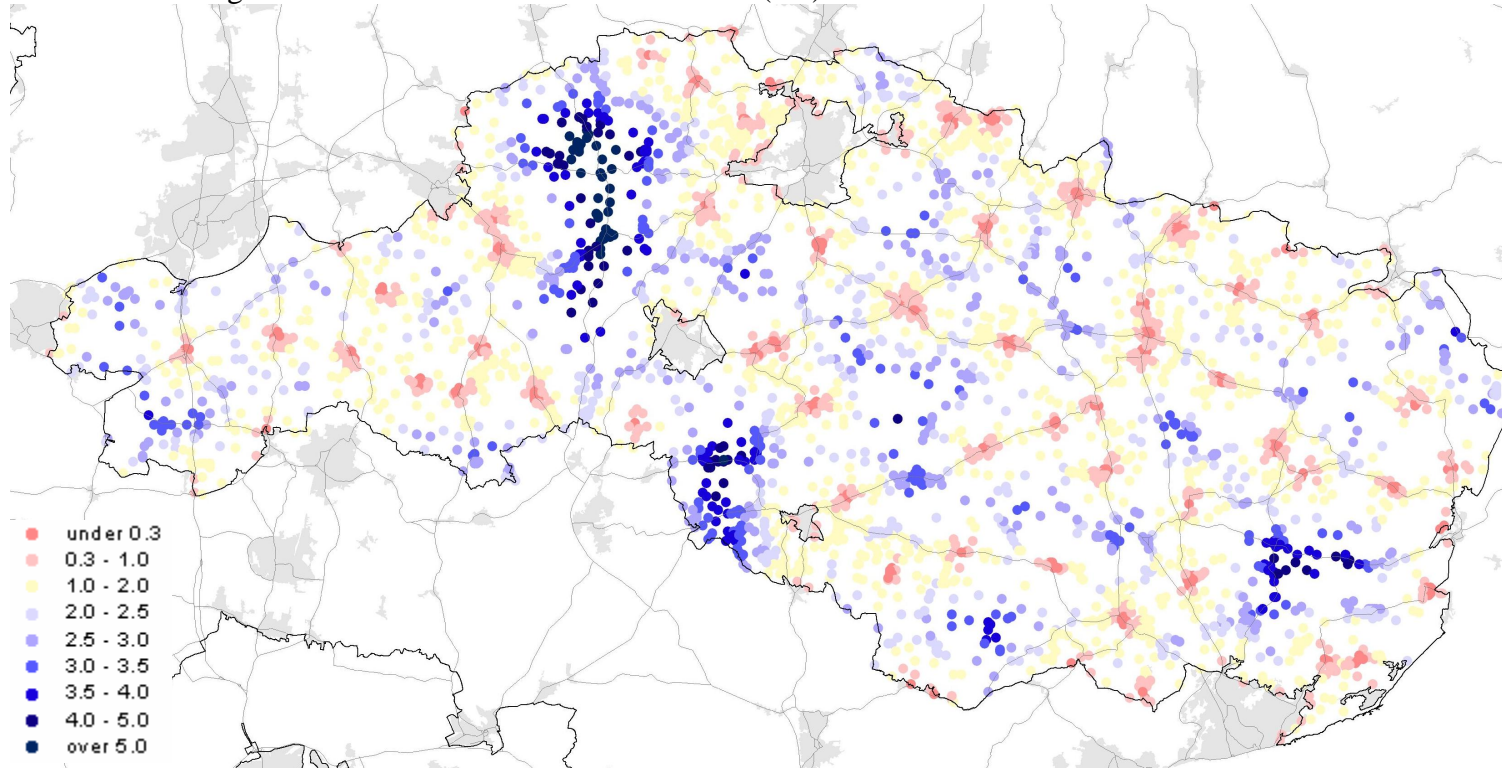


Figure 7.3: Distance to Nearest Facilities- Composite Measure

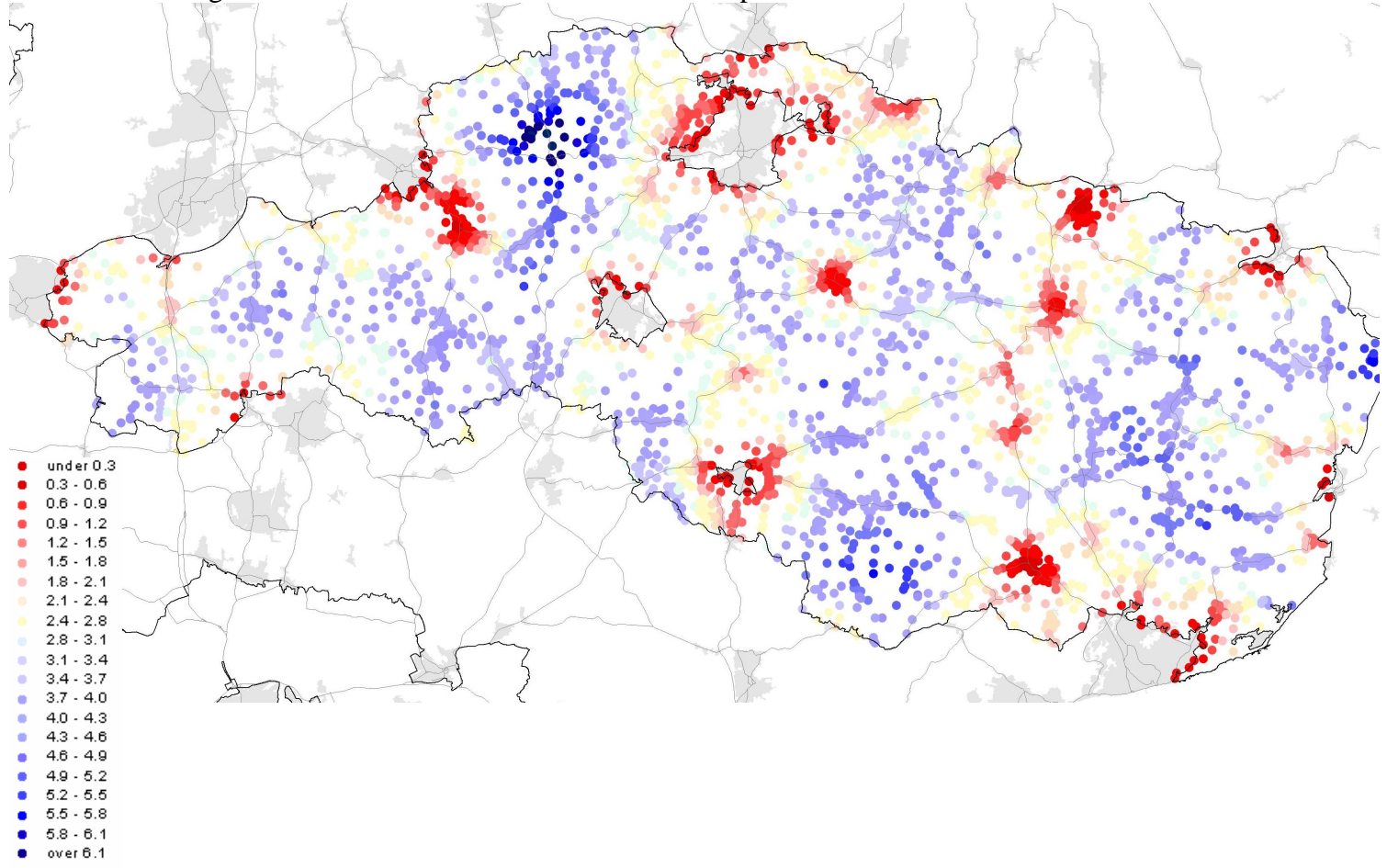


Table 7.2: Availability of local services (within specified distances), 2006

	Number of Households	Banks and building societies <4km		Cash Points <4km		Dentists <4km		GP Surgeries <4km		Petrol Stations <4km		Post Offices <2km		Primary Schools <2km		Secondary Schools < 4km		Supermarkets <4km	
		number	%	number	%	number	%	number	%	number	%	number	%	number	%	number	%	number	%
High Weald	48,599	27,129	55.8	40,095	82.5	29,079	59.8	37,888	78.0	40,105	82.5	36,043	74.2	40,977	84.3	20,772	42.7	21,091	43.4
Rural High Weald	46,702	25,391	54.4	38,198	81.8	27,480	58.8	36,144	77.4	38,208	81.8	34,222	73.3	39,209	84.0	18,889	40.4	19,346	41.4
Rural England			63.7		88.5		71.4		84.0		88.0		85.2		87.5		62.5		69.9
Rural England (less sparse):																			
Urban 10k			99.7		100.0		99.8		100.0		100.0		99.8		99.9		99.8		99.9
Town and fringe			78.8		98.3		82.6		96.0		94.5		98.7		99.0		76.2		86.9
Village			45.7		84.9		53.2		73.6		81.6		74.2		80.6		48.4		55.5
Dispersed			57.1		85.9		61.3		77.8		83.6		66.7		71.8		56.9		63.0

Comparator figures for categories of settlement across England have been derived from CRCs 'State of the Countryside Report' (2007)

## 8. CONCLUSION

- 8.1 Across the High Weald AONB, it appears that roughly half of present day addresses associated with historic farm property are in residential use. This proportion is very similar to that found in the previous study for English Heritage (Bibby and Brindley, 2006a). Where property is not in residential use, it has tended to remain in agricultural use. The extent to which historic farm property has been put to purely non-residential use outside the agricultural sector is extremely limited.
- 8.2 By matching historic agricultural building addresses with business addresses, it has been possible to examine the extent to which substantial companies (ie those with a turnover of more than £1.5 million) are represented in buildings of concern. This shows that the occupiers overwhelmingly remain in the small business sector.
- 8.3 The limited range of non-residential uses is important, as it points to the limited success of planning policies designed to find new employment uses for redundant agricultural buildings and to avoid residential conversion. Given the intensity of demand for residential conversions, evidenced by the findings of this study with respect to property prices, the tendency to residential conversion is perhaps inevitable.
- 8.4 The English Heritage study demonstrated that as dwellings, historic farm property is highly prized. Over the period since 2000, the prices secured for dwellings associated with historic features have been substantially above those of other property within a 10 kilometre radius. Moreover, historic farm property **within the AONB**, appears to provide homes for an economic elite. Analysis of the home addresses of directors of companies with turnovers of more than £1.5 million shows that there are on average 38 such directorships for every 100 households living in or immediately adjoining historic farm property within the AONB. As the prices of second hand residential property are demand driven, and as historic farm buildings are clearly playing a significant part in providing homes for an economic elite, there is no conceivable circumstance in which *marginal* non-residential uses could compete economically.
- 8.5 Work undertaken since the completion of the English Heritage study identified a high level of enterprise among residents of historic farm property within the High Weald AONB. A distinction may be made between residents of the north-west of the AONB, disproportionately engaged as directors of substantial businesses and predominantly London based, and residents of historic farm property further to the east. To the east and south, historic farm property may form the residential hub of local business activities. Such activity, largely demanding the use of smallholdings is of particular significance to the conservation of the landscape of the High Weald.
- 8.6 The pattern of property utilisation suggests that to the north and west property prices and hence property utilisation are driven by a national economic elite and must also be understood in the context of a highly restrictive planning policy. Rates of development are low in comparison to England as a whole and there is evidence to demonstrate the efficiency of the planning system within the AONB in limiting development of new property.

- 8.7 In recent years, this combination of high demand underpinned by high income has not led to the intensification of the use of existing property. While conversion of agricultural buildings to residential use has proceeded rapidly, these rates have been lower than those typical of Rural England generally. Demand for larger dwellings appears to have offset tendencies to intensification.
- 8.8 It does not necessarily follow that in a generally affluent area either that the retail offer will be good, or that access to market services will be adequate. This will also depend on the supply of different forms of retail, which will depend upon economies of scale. In areas such as the High Weald AONB, which are typified by dispersed settlement and which lack substantial nucleations, such economies of scale do not exist. The analyses reported here demonstrate that several small settlements sustain a higher number of retail units than might be expected in settlements of such size across Rural England generally. They also demonstrate that the level of access to services in the AONB is good when account is taken of the disadvantage implied by the settlement pattern. Nevertheless, access to services is not as good for High Weald AONB residents as it is across Rural England as a whole, implying further disadvantage to those residents who are economically disadvantaged.

## References:

Bibby, P. and Shepherd, J. (2004) *Developing a New Classification of Urban and Rural Areas for Policy Purposes – the Methodology*. Report for the Department for Environment, Food and Rural Affairs (Defra). Available on the world wide web at [http://www.defra.gov.uk/rural/ruralstats/ruraldefn/Rural\\_Urban\\_Methodology\\_Report.pdf](http://www.defra.gov.uk/rural/ruralstats/ruraldefn/Rural_Urban_Methodology_Report.pdf)

Bibby, P. and Brindley, P. (2006a) *Historic Farm Complexes in Current Socio-Economic Context: a Pilot Study*. Report for English Heritage.

Bibby, P. and Brindley, P. (2006b) *Land Use Change at the Urban: Rural Fringe and in the Wider Countryside*. Report for the Countryside Agency, as part of the *Countryside Quality Counts* project. Available on the world wide web at <http://www.cqc.org.uk/publications/LandUseChange-Report.pdf>

Bibby, P. and Brindley, P. (2006c) *Residential Development since 2000*. Report for Communities and Local Government (CLG).

Bibby, P. and Brindley, P. (2007) *Land Use Change Indicators for Protected Areas*. Report for Natural England.

Commission for Rural Communities (2007) *State of the Countryside 2007*. Available on the world wide web at <http://www.ruralcommunities.gov.uk/projects/stateofthecountryside2007>

## **Appendices**

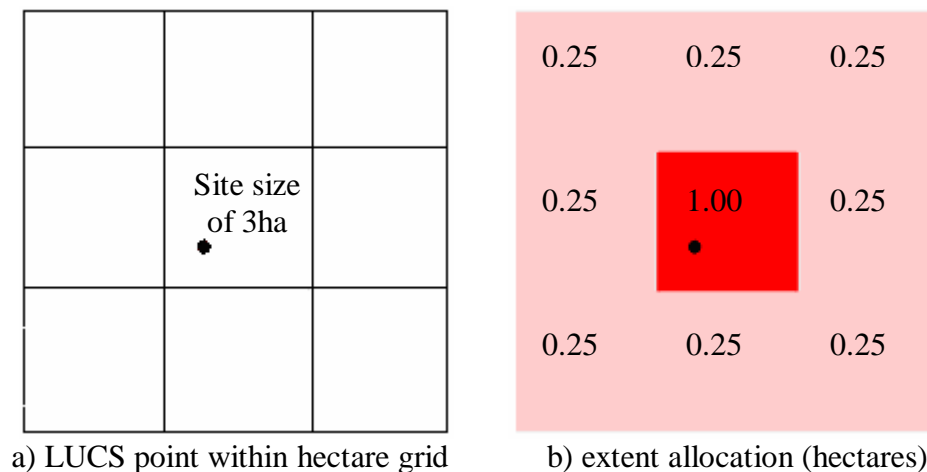
Appendices 1 through to 7 have been taken almost entirely from a report TRP prepared on behalf of English Nature in December 2006, entitled 'Historic Farm Complexes in Current Socio-Economic Context: a Pilot Study'. As indicated in paras 1.1-1.4, the work in this report for the High Weald AONB builds directly on this previous study.

Appendix 8 provides an overview of the methods used to derive information about business activity in properties principally in residential use and Appendix 9 describes the method used to calculate the expected work-travel distances discussed in Section 4. An example of an access to service distance list of the type used in the analyses of Section 7 (paras 7.1-7.4) is provided as Appendix 10.

## Appendix One: Use of Grids

- A1.1 Data here have been converted to grids for analytic purposes. Each cell in each grid is one hectare in extent (i.e. 100metres by 100 metres).
- A1.2 In the case of LUCS, each record includes an estimate of the area subject to change, it is represented only by a single point. While the average area associated with a residential LUCS event is small (0.31 hectares), 0.02 percent refer to areas of greater than 10 hectares.
- A1.3 When converting the point data to grids, it is important to recognise that the area implied by some LUCS records will ‘overflow’ the tiles to which the point refers. The original point data have therefore been ‘spread’ out into the surrounding cells to cover an area equal to that indicated on the record. In the example below, the LUCS record has an associated site size of 3 hectares, and cannot fit entirely into the hectare cell in which the LUCS point falls. The site is assumed to fill its ‘host’ cell and extended into the surrounding cells (0.25 hectares in each of the 8 adjoining cells).

Figure A1.1: The conversion of LUCS points to grids to account for areal extents

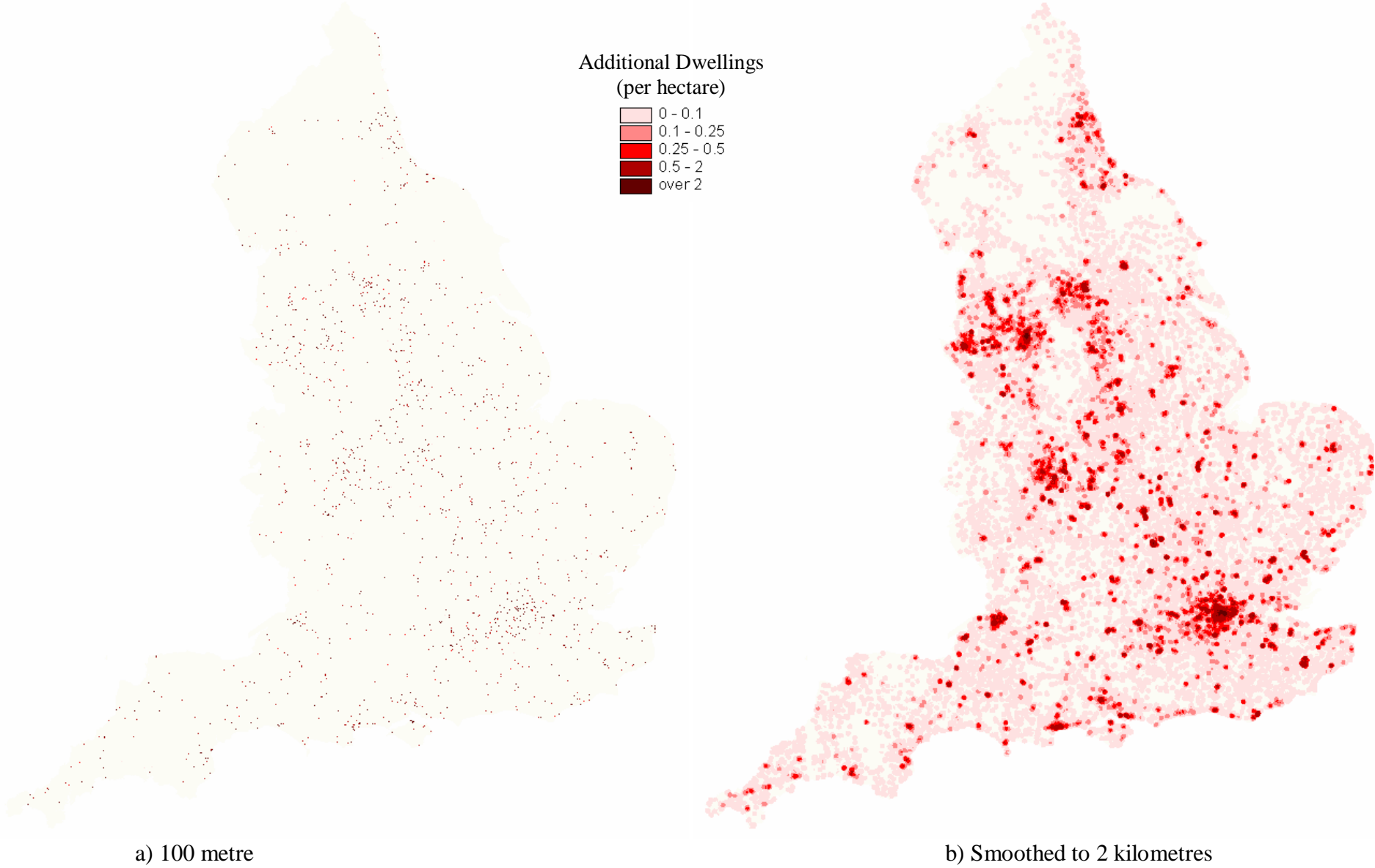


- A1.4 Having assembled data into grids, they may be generalized to reveal patterns and to examine relationships at different geographic scales. Figure A1.2a attempts to show variations in intensity of development at hectare cell level, and demonstrates the impossibility of grasping the pattern without some generalization. This can be achieved by using moving spatial averages, thereby commuting actual housing output in cell  $q$  (denoted here  $H(q,0)$ ) as shown in Figure A1.2a), to a tendency to develop over a particular radius  $r$  around cell  $q$ . The tendency to develop within 2000 metres of cell  $q$  (denoted here  $H(q,2000)$ ) is shown in Figure A1.2b. When represented as a 2km moving average in this way, the pattern of development between 2000 and 2004 becomes immediately obvious.
- A1.5 This process of applying geographic moving averages may be referred to as smoothing by way of shorthand. The necessary technical tools are provided in those GIS systems with grid functionality. Work at TRP has focused on how these generally available techniques can be used to highlight aspects of geographic distributions at

particular spatial scales and to assess the degree of statistical relationship between different grid datasets at a range of spatial scales.

- A1.6 One elementary operation of particular value entails creating a grid say (c), representing the ratio of one grid (a) to another (b). This might be used for example to illustrate the number of historic farmhouses relative to numbers of dwellings at a chosen spatial scale (eg 1km). This approach is intensively used in the present report. Construction of such ratio grids, however, may induce computational difficulties where one very small number (eg 0.000000001, representing say the number of listed oast houses per hectare at the 10 kilometre scale) is divided by another number of a similar order of magnitude. This will generate extremely high values which, however, are of no substantive significance, and which hamper the construction of class intervals and estimation of statistical relationships. These difficulties demand systematic treatment which would involve filtering out extremely small values. At present, at TRP we deal with these issues on a grid by grid basis to ensure that such anomalies are removed.

Figure A1.2: Intensity of Residential Development (units), England 2000-2004 by Hectare Cell



## **Appendix Two: Historic and present day settlement typologies**

- A2.1 For the purposes of generating urban and rural definitions, TRP devised a settlement morphology classification that attempted to capture physical settlement structure at the time of the 2001 Census of Population. It is based on estimation of density profiles that is a series of density measures at a range of scales (see Bibby and Shepherd, 2004 for more details). As shown in Figure A2.1, it identifies villages, hamlets and isolated farms towards the base of the settlement hierarchy.
- A2.2 Isolated farmsteads can be separately identified in this classification except where they fall in zonal types defined by proximity rather than intrinsic character (ie peri-urban, urban fringe or village envelope).
- A2.3 The identification of hamlets is based on finding clusters of three to eight 'farmsteads'. Recognition of farmsteads, however, depends on present day postal addresses rather than historic evidence (property names such as X Farm, X Farm Cottage X Farm House or X Farm Barn have been used to indicate the presence of a farmstead).
- A2.4 There may be some interest in understanding the relation between a settlement classification based entirely on current circumstances and one explicitly grounded in examination of historic patterns. Not surprisingly, comparison of the historic English Heritage classification and the TRP morphology reflects very substantial change. Comparison with historic settlement context information provided for the historic features identified by English Heritage reveals important associations with the settlement morphology (see Table A2.1), but shows that considerable work would have to be undertaken to reconcile the historic and modern typologies. Work constructing the former Countryside Commission's New Map of England in the 1990s demonstrated, the possibility of matching with historic settlement patterns using geographic generalisation (using a far cruder representation of modern settlement).
- A2.5 The identification of hamlets on the basis of present day address data is weak in that it may mask historic status with many historic hamlets appearing as isolated farms. There is a relatively strong tendency for village contexts identified by English Heritage to coincide with those in the TRP typology. Nevertheless, fifteen percent of historic features assigned to villages contexts by English Heritage fall within urban areas with a population of over 10,000 or more at the time of the 2001 Census, while eight percent of such features appear as isolated in 2001. Any sustained analysis would demand first, clarifying the distinction between the present day and historic status, and second, improving methods for distinguishing on the basis of present day address data villages, hamlets, parks, and isolated farms.

Table A2.1: Comparison of Historic and Present day (TRP) Settlement Morphologies

	FC	HAM	ISO	PARK	VILL	OTHER
Urban 10k	7.9	9.3	7.1	5.2	15.3	1.3
Town	0.3	1.7	1.5	0.5	4.7	1.3
Fringe	0.3	1.1	1.0	0.9	2.7	0.0
Peri-urban	12.1	11.8	15.1	18.9	6.6	14.7
Village	6.6	13.7	4.3	8.0	37.6	5.3
Village envelope	10.0	12.4	6.3	6.1	18.2	6.7
Hamlet	13.6	10.3	5.3	2.8	2.5	4.0
Isolated farm	28.1	23.5	22.6	15.6	7.6	20.0
Other	21.3	16.2	36.7	42.0	4.9	46.7

A2.6 The complications of relating historic to present day settlement patterns notwithstanding, there are some particular straight-forward relationships between survival attributes of agricultural buildings and current settlement context (Table A2.2). Within urban areas with a population of 10,000 or more, there is a greater probability that agricultural buildings will have been lost or that the farmhouse only will remain. (It is also more likely that the building will not fall into one of the six standard survival attribute categories). While overall survival attributes do not differ markedly between current settlement contexts, there is a lower chance that buildings assigned to the isolated farm of the TRP classification will have been lost.

Table A2.2: Farmstead Survival Attributes by TRP settlement morphology

	ALT	ALTS	DEM	EXT	HOUS	LOST	OTHER
Urban 10k	4.0	6.0	1.4	3.1	11.0	17.2	32.5
Town	1.3	1.8	0.4	1.2	2.2	2.4	15.0
Fringe	0.9	1.0	0.0	1.1	1.2	1.9	10.0
Peri-urban	14.5	14.1	14.1	15.1	11.8	15.4	12.5
Village	10.2	8.3	5.1	10.6	9.5	5.4	5.0
Village envelope	9.4	8.4	7.2	8.8	11.0	6.8	2.5
Hamlet	6.8	6.1	6.2	7.3	7.6	4.5	2.5
Isolated farm	26.1	24.3	28.3	26.7	22.4	14.6	10.0
Other	26.8	30.1	37.3	26.2	23.4	31.7	10.0

ALT: Partial Loss – less than 50% change

ALTS: Significant Loss – more than 50% alteration

DEM: Total Change – Farmstead survives but complete alteration to plan

EXT: Extant – no apparent alteration or very minimal change

HOUS: Farmhouse only survives

LOST: Farmstead / Outfarm totally demolished

### Box A2.1: Brief outline of TRP settlement typology categories

For definition of the TRP settlement typology categories see Bibby, P and J Shepherd *Developing a New Classification of Urban and Rural Areas for Policy Purposes – the Methodology*. This is available at [www.defra.gov.uk/rural/ruralstats/rural-defn/Rural\\_Urban\\_Methodology\\_Report.pdf](http://www.defra.gov.uk/rural/ruralstats/rural-defn/Rural_Urban_Methodology_Report.pdf).

The definition of urban areas rests on the boundaries of ‘areas of urban land’ delimited by Ordnance Survey (OS), for CLG. Areas of urban land, as delimited by

OS, may be coterminous with settlements, but they also include tracts of land without resident population such as airfields, or distribution parks. Only those areas of urban land with a population of 10,000 are regarded as physical 'urban' settlements and are treated as 'urban' in this Table.

The boundaries of areas of urban land also provide physical boundaries for many smaller nucleations. The definition of other smaller settlements rests on 'density profiles' calculated using postal address information. Profiles are created by calculating densities at a series of scales (200m, 400m, 800m and 1600m - around each cell). The different types of settlement have different density 'profiles.

The 'village' category as defined here has the following properties: a density of greater than 0.18 residences per hectare at the 800m scale, a density at least double that at the 400m scale and a density at the 200m scale at least 1.5 times the density at the 400m scale. Density profiles also identify envelopes around villages.

'Towns' have a distinct profile, and the term refers to larger settlements still below the 10,000 population threshold. 'Fringe' areas, whether at the limit of a physical settlement or linear 'straggly' settlement are identified by marked changes in density at different scales.

'Periurban' areas refer to broader tracts of higher density around the limits of major urban centres.

Villages are distinguished from 'hamlets'. This is not simply a morphological distinction. By applying natural language processing, PAF is used to identify farmsteads which are then grouped to identify hamlets. The 'Other' category refers to dispersed settlement in isolated dwellings other than (historic) farmsteads.

#### Reference:

Bibby, P. and Shepherd, J. (2004) Developing a New Classification of Urban and Rural Areas for Policy Purposes – the Methodology. Available at: [www.statistics.gov.uk/geography/downloads/Methodology\\_Report.pdf](http://www.statistics.gov.uk/geography/downloads/Methodology_Report.pdf) [last accessed 30/03/07]

Figure A2.1: The Settlement Classification

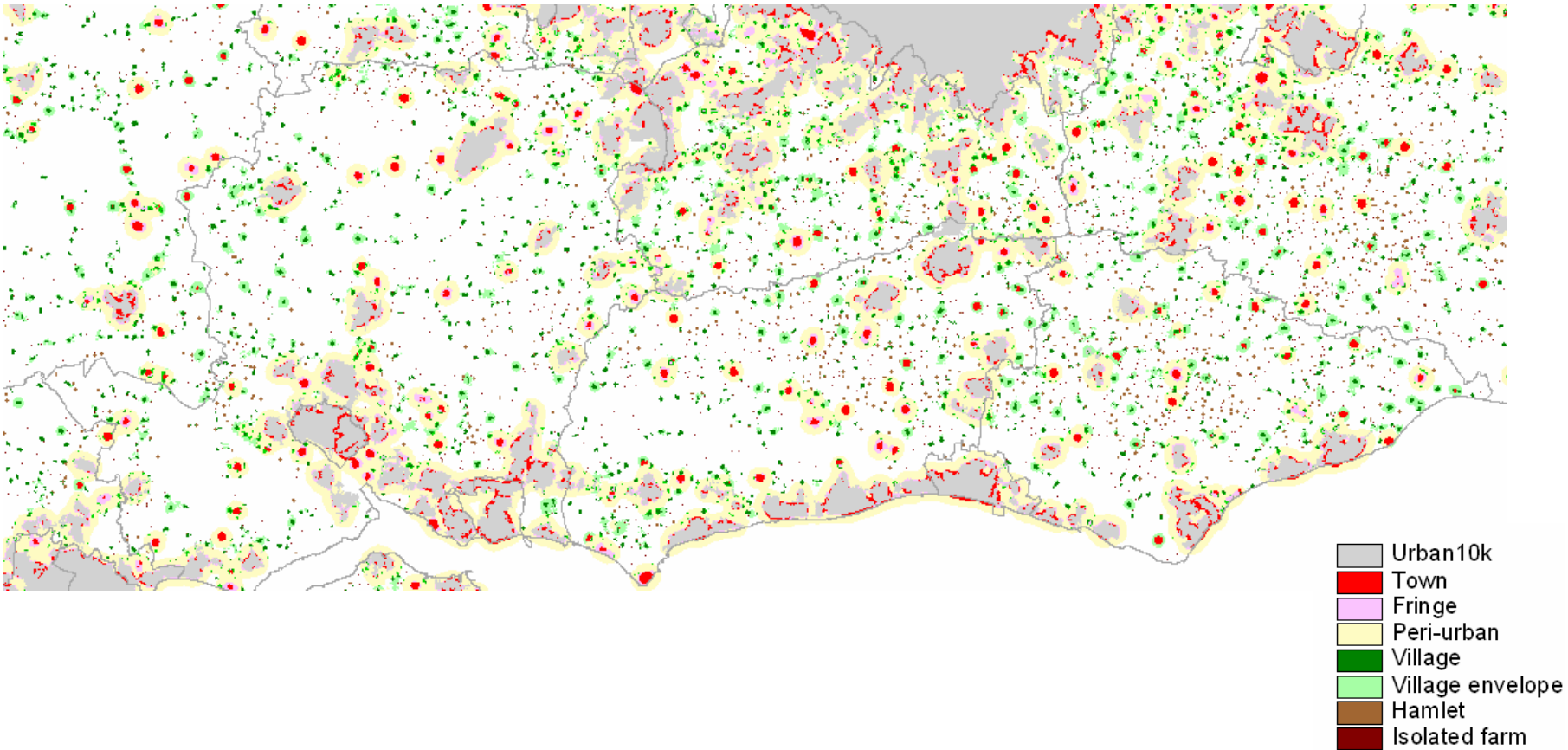
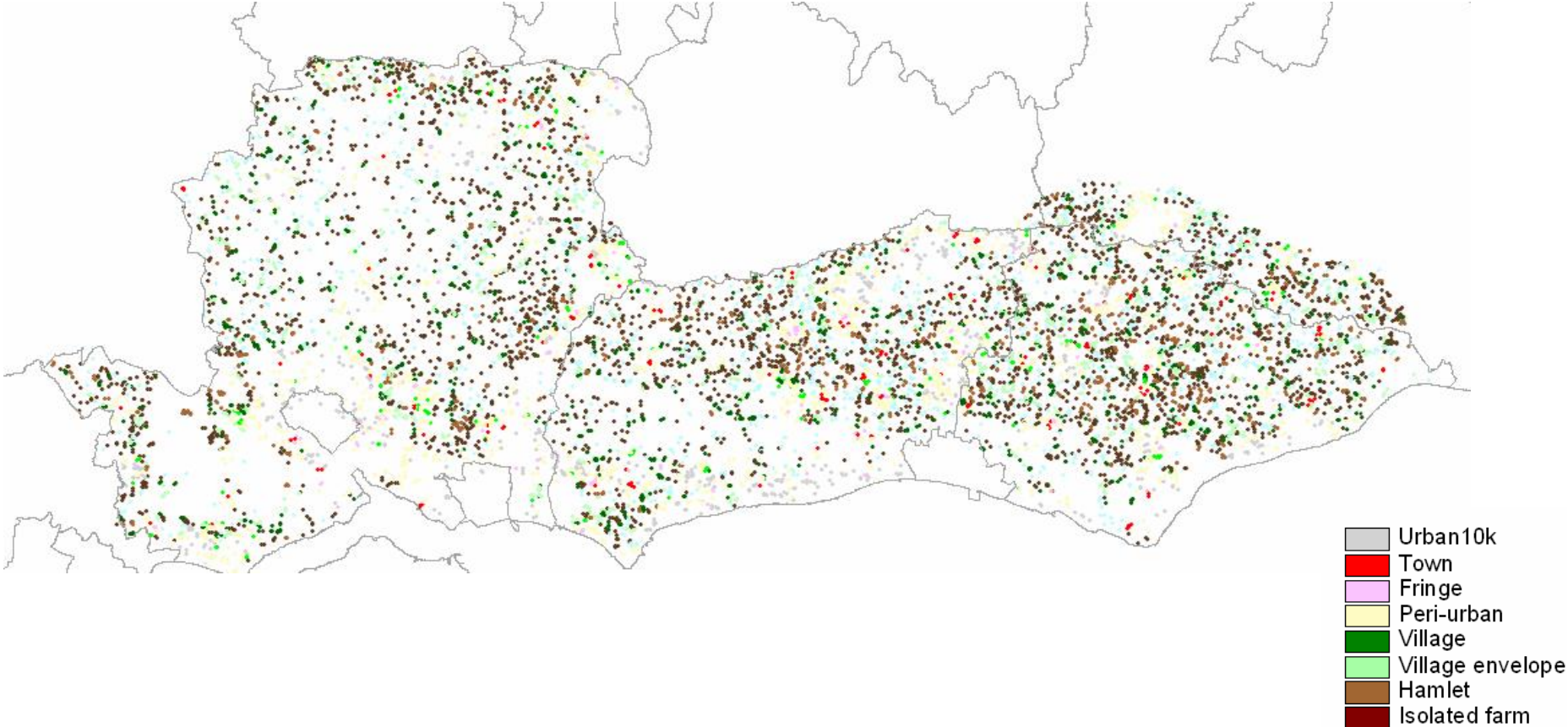


Figure A2.2: The Settlement Classification at Historic Features



### **Appendix Three: Matching Historic Agricultural Features with Present Day Postal Addresses**

- A3.1 The pilot study demands linking information about historic farmsteads with other data from Land Use Change Statistics (LUCS), Population Census, Valuation Office Agency, and other sources. Linkage to LUCS depends entirely on comparison of grid references. Historic agricultural buildings data can also be linked to the Census using the grid references (to identify a Census Output Area), though most of the linkage reported here depends upon comparison of unit (ie full) postcodes. All other linkages depend upon the unit postcode.
- A3.2 As a preliminary, it is therefore necessary to examine the linkage of historic farmstead data to unit postcodes. Two principal datasets were provided by English Heritage; one representing farm complexes by a single point (14,363 cases), and the other representing farm complexes by one or more polygons (504 cases). All farm complexes represented by polygons within the dataset provided by English Heritage appear also to be also represented in the point dataset. The analyses reported here depend entirely on the (comprehensive) point dataset.
- A3.3 A critical requirement of the pilot study was that of associating historic features with current postal addressable property, ie matching by way of short-hand. Initially, all properties identified by postcodes tied to grid references within 400 metres of historic farmstead points were extracted from the Postcode Address File (PAF). There were 9,967 such properties (ie 78% of all the historic agricultural buildings records). It should be stressed that these addresses do not necessarily correspond to historic farm property but are merely constitute a set within which further searches were undertaken. There were 3,202 historic farm points with no associated PAF addresses within 400 metres (ie 22% of the total), of which 2,072 referred to surviving buildings other than those coded as 'lost' or which lacked a code (ie 14% of the total). Apart from an unsurprising tendency for historic features in urban areas not to have corresponding day postal addresses, as Figure A3.1 shows, there is very little systematic variation in the tendency for historic features to have no postally addressable counterpart.
- A3.4 In the analyses that follow attention centres on the matching of historic farm property believed to be extant by English Heritage (this avoids highlighting spurious mismatches where historic property no longer exists). It should however be pointed out that in 159 cases it is possible to match buildings not described as extant by English Heritage with present day property (see Figure A3.1). This presumably indicates that sites have remained in occupation while physical structures have been re-built.
- A3.5 In a sustained analysis, it would seem appropriate to attempt to match surviving historic farm buildings with PAF addresses even where there *appear* to be no such addresses within 400 metres. This would involve comparison of names of farmsteads and localities across broader areas. Given the nature of this pilot investigation, this has not been pursued (although the type of name matching that would be used is deployed below).

- A3.6 It is important to understand the circumstances in which matches may or may not be found. In principle, there are three reasons why it may *not* be possible to match a historic farm building with a nearby unit postcode. First, the farm building may have **not survived**. Second, the building may have survived, but may **not be addressable** (ie it may be a yard, an isolated agricultural building (or indeed a whole farm complex) which is neither a dwelling or receives letters as a non-residential address). A gross analysis suggests that approximately 950 historic features that fall into this class. These include features referred to by generic (rather than proper) descriptors such as ‘Building ne of Northlands field’, ‘barn 850 m se of Lower Beeding’, ‘Field shelter s of Wadhurst’, ‘Outfarm adjacent to Ham Shaw Wood’, ‘Outfarm in Hassocks’, ‘Yard adjacent to Toad Hall’, ‘Unnamed farmstead nw of Keyfax’ or simply ‘Outfarm’.
- A3.7 Thirdly, the **grid references** (either associated with PAF data or English Heritage data<sup>3</sup>) may be incorrect. This third category potentially includes cases where a number of geographically disparate properties share the same unit postcode.
- A3.8 It is potentially important to distinguish historic farm property that is not addressable (in the sense above) from that which cannot be matched because of inaccurate grid references. Where property is not addressable, it is a reflection of its current use as storage, for example. Such unmatched property *must* be included as a proper component of any analysis. Where property cannot be found on the other hand, it must necessarily be excluded from the analysis<sup>4</sup>.

### Match Types

- A3.9 Having separated historic agricultural property into that portion which might potentially be matched with current property from that where there can be no candidate matches, the next step is to compare property names in the English Heritage and PAF datasets. Of necessity, this depends upon comparison of the two sets of natural language addresses, which entails devoting some attention to the characteristics of the address data themselves.
- A3.10 The English Heritage data provides what might be thought of as four types of property address:
- i. generic addresses (eg farmstead NE of East Meon),
  - ii. proper names unambiguously referring to individual properties and incorporating generic terms (eg Stonehill Farm, Winton Lodge),
  - iii. other proper names apparently referring to individual properties (eg Staddlestones, the Rookery),
  - iv. proper names which might potentially refer to a farm, hamlet or larger settlement (eg Lower Borden, Water End).

---

<sup>3</sup> EH have devoted substantial officer time to correcting inaccurate grid references and it is presumed that the historic features are reliably referenced.

<sup>4</sup> Were it necessary, it would be possible to provide an overall estimate of the proportion of grid references on PAF which fall more than 400 metres from their correct location.

- A3.11 Many of the addresses provided by English Heritage comprise two (alternative) proper names, with the second appearing in brackets (eg Michaels (Old Farm), Mortimer's industrial estates (Mortimer's Farm)).
- A3.12 This discussion focuses initially on attempts to match addresses incorporating *proper names* (ie those in Groups ii, iii, and iv above), with those on the Postcode Address File. On this basis it is possible to identify three match types (in addition to match type 0, the term used to refer to those historic farm properties without any candidate matches of any sort):
- exact matches (Match Type 1)
  - indexical matches (Match Type 2)
  - possible matches (Match Type 3)
- A3.13 These three match types differ in their *semantic* value (ie the actual sense of the name) as distinct from simply *lexical* differences (ie in spelling and word division). All three types of matches use an extended Soundex routine<sup>5</sup> allowing for differences in spelling and word division.
- A3.14 The approach used here is more stringent than traditional Soundex routines. To constitute a lexical match, words have to have the same initial letter. They must also have the same extended Soundex code (using the first ten consonants in any string rather than merely four), it is also necessary that the number of syllables in the historic farm name is compatible with the number of syllables in the current property name. Subject to these constraints, a lexical acceptable match may be formed between two property names where one has one constant more or less than the other, or where one pair of consonance may appear in the opposite order in the two terms. These last two provisions are included to allow for spelling or transcription errors. The three semantic match types are now discussed in turn.

### **Exact matches (Match Type 1)**

- A3.15 In the simplest case the property name of the historic feature is lexically identical or almost identical to an address within the Postcode Address File. Semantically it is an exact match. The term 'almost identical' includes matches with slight (lexical) differences in spelling (eg 'Weak Green Farm' and 'Wyke Green Farm'), or word division (eg 'Swains Hill Manor Farm' and 'Swaineshill Manor Farm'). Rather more than a third of all historic features can be matched in this way, with present day addressable property, accounting for 5,199 features. More specifically, forty-three percent of farmsteads can be matched in this way, but only six percent of outfarms.

---

<sup>5</sup> Soundex is a protocol developed within the US Census for indexing (personal) names which involves removing vowels and representing consonants simply as a number of consonant types. This is frequently used in attempts to match names (such as in genealogy) which are similar in sound.

### BOX: A3.1: Examples of Semantically Exact Matches

	<b>English Heritage Farm name</b>	<b>Postal Address name</b>
Identical mach:	Nuthanger Farm Wadwick House	Nuthanger Farm Wadwick House
Spelling:	Crowshot Park Farm Moetes Farm Linthurst	Crowshott Park Farm Moieties Farm Lynthurst
Word Division:	Adbury Park Farmhouse Lowergreen Farm	Adbury Park Farm House Lower Green Farm
Apostrophes:	Beeston's Farm	Beestons Farm
Bracketed match:	Rowe Farm (Butlers Farm) Cattle Hill Stables (Seven Barrows)	Butlers Farm Seven Barrows
Combination of factors:	Walnut Farm (Stubshill Farm)	Stubbs Hill Farm

### Indexical Matches (Match Type 2)

- A3.16 In the case of English Heritage addresses of Groups iii and iv, a rather different approach to matching has been employed (with allowance for variation in spelling and word division once again incorporated). Where English Heritage record a proper name such as 'Lower Borden' and it cannot be matched directly (accounting for lexical differences eg such spellings as Boarden, Bordon, Burden, Barden, Bardon etc), an attempt has been made to match it with properties sharing that proper name but having an appropriate property suffix. This allows 'Lower Borden' to be matched with 'Lower Borden Farm', or 'Lower Borden Farm Cottage'. At the same time entries such as 'Norman Farm' have been matched with 'Norman Farmhouse'. Further examples of this class include, 'Home Farm (Longmoor Farm)' and 'Longmoor Farm Buildings' or 'Chilling Farm (Little, Chilling)' and 'Little Chilling Farm House'.
- A3.17 Indexical matches also include substantively important cases where for example 'X Farm' is matched with 'X Farmhouse', perhaps reflecting the severance of a historic farmhouse from a continuing modern agricultural enterprise. Other cases include those where 'X Farm Cottage' or 'X Farm Bungalow' stands as an indexical sign for 'X Farm' but where there is no parallel implication of severance of a farmhouse from a traditional farmstead.
- A3.18 Other indexical matches of substantive significance are those where a historic farm is 'indexed' by a term such as 'X Farm Hotel', 'X Farm Nurseries', 'X Farm Kennels', 'X Farm Stud' (see table A3.1). (This is one possible pointer to a current use of a historic feature; the others including those based on the occupiers names are discussed in Appendix Four below).

A3.19 Use of indexical matching confirms a tendency for outfarms not to be put to other uses. It would be plausible that the name of an outfarm recorded by English Heritage might be indexed by a related name, but this proves very rare. Only one percent of outfarms can be matched in this way.

A3.20 Overall, there are 1,322 such cases as shown in table where historic farm property has been found an indexical match as indicated in table A3.1.

Table A3.1: Indexical Matches and Types of Property Suffix

	Property Suffix	Cases
X farm	House	464
X; X farm	Cottage	226
X	Farmhouse	218
X	Farm	195
X; X farm	Oast	44
X; X farm	Barn	19
X; X farm	Manor	17
X; X farm	Lodge	15
X; X farm	Stables	10
X; X farm	Bungalow	9
X; X farm	Estate	6
X; X farm	Hotel	6
X; X farm	Nurseries	6
X; X farm	Park	6
X; X farm	School	6
X; X farm	Home	4
X; X farm	Court	3
X; X farm	Kennels	3
X; X farm	Place	3
X; X farm	Shop	3
X; X farm	Annexe	2
X; X farm	Buildings	2
X; X farm	Centre	2
X; X farm	East	2
X; X farm	End	2
X; X farm	Mill	2
X; X farm	Office	2
X; X farm	Stud	2
X; X farm	Other misc	43

### Possible Matches (Match Type3)

A3.21 The final (and loosest) type of match links the address of a historic feature recorded by English Heritage with *any* current postal address referring to an appropriate class of building within a 400 metre distance. In this instance, an appropriate classes of buildings would be recognised by terms such as ‘farm’ or ‘farm barn’, ‘farm cottage’ etc. Thus, ‘Dodds Farm’ is ‘matched’ with ‘Wellhouse Farm’ and ‘Ivy House Farm’ with ‘Ragmore Farm Cottages’. It should be noted that a high proportion of outfarms (thirty-eight percent) can be matched in this way. Many of these possible matches will not point to extant farm property and should be regarded as spurious.

A3.22 This is not to suggest that – appropriately used – matches of this type may not be potentially valuable. In a landscape of isolated farms, it is plausible that such matches might reflect changes of name, though this would not be clear in a village. More generally, given a farm’s context (or setting) it might be possible, in a more sustained study, to assess the likelihood that a change of name has occurred.

A3.23 The relative frequency of different farm settings in the case study area is discussed in Appendix Two. Forty-four percent of farmsteads matched in this loose way are found in isolated or other contexts, where there seems very little possibility that the postal address actually refers to another farmstead.

### **Matching: overall comments**

A3.24 Overall, there seems little systematic place-to-place variation in the types of matches found (see Figure A3.3). Generally speaking, it appears less likely that historic features (even when still extant) can be associated with present day addressable property along the crest of the south downs and at the fringe of some urban areas (such as Portsmouth). In the former case, the relatively limited tendency of historic agricultural buildings to be put to alternative beneficial use seems likely to reflect the absence of roads and associated infrastructure (there is therefore some tendency for concentration of match type 0 in these areas).

A3.25 There seems to be some systematic tendency for it be more possible to find exact matches (match type 1) between historic farm property and present day postal addresses in large parts of East Sussex and Hampshire rather than in West Sussex. There seems to be little systematic tendency for variation in the likelihood of indexical matches (match type 2) (eg where x farm might be linked to x farmhouse), the apparent concentration of such matches around Overton (near Basingstoke), resting on very few cases in absolute terms. As one might expect, there appears to be little systematic variation in the proportion of matches of type 4 (possible matches).

A3.26 Overall, therefore, it appears that sixty nine percent of historic features are close to existing properties which are postally addressable. (A further four percent of historic features appear still to be extant but are not near addressable property.) In the case of farmsteads, seventy five percent are close to existing postally addressable properties, though in the case of outfarms the corresponding figure is only thirty five percent. This suggests that outfarms are not being put to other residential or commercial uses (albeit that they might remain in use as storage).

Table A3.3: The Matching of Extant Features by Event Type

%	<b>No</b>			
	<b>candidate matches</b>	<b>Exact matches</b>	<b>Indexical matches</b>	<b>Possible matches</b>
Farmstead	25.3	42.9	10.9	20.9
Outfarm	54.9	5.9	1.4	37.8
Overall	30.6	36.2	9.2	24.0

Figure A3.1: Matched and Unmatched Historic Features

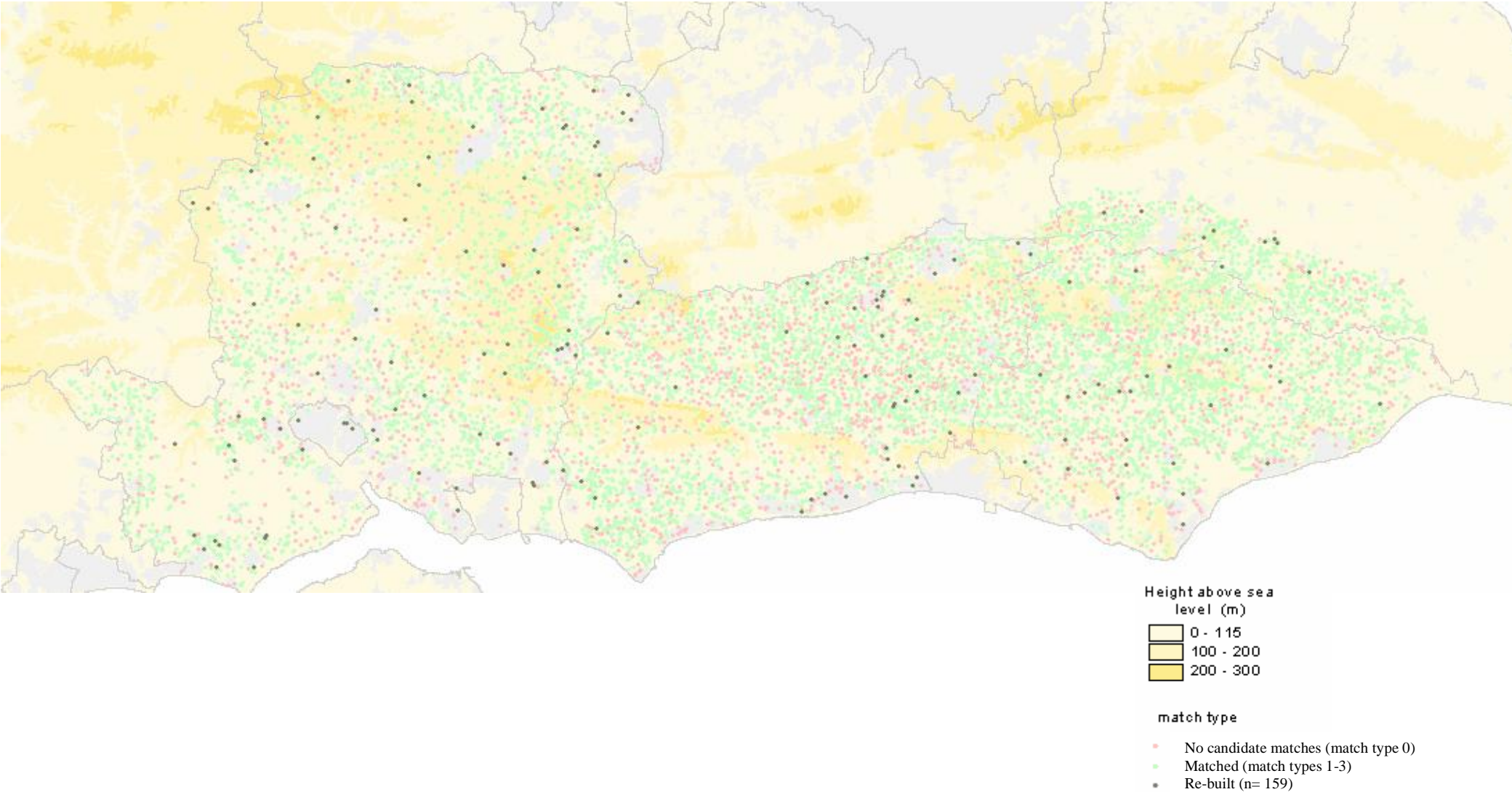
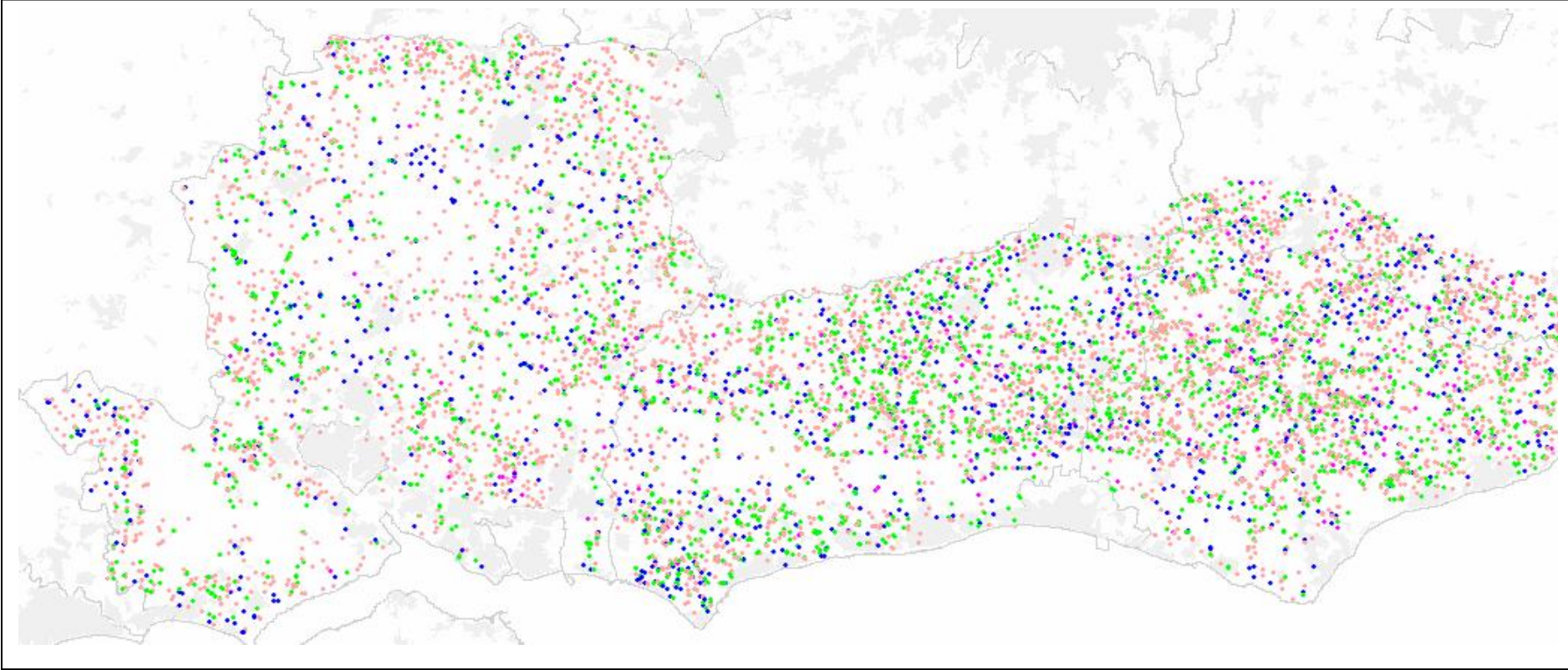


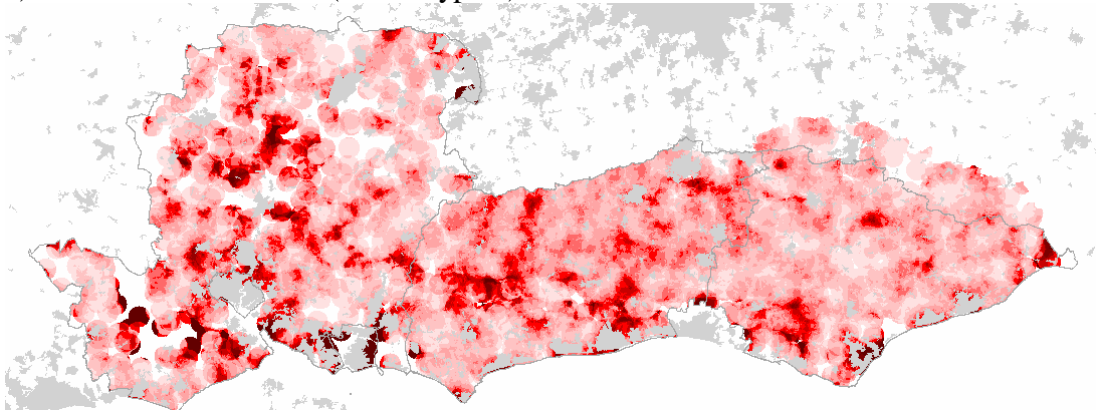
Figure A3.2: Matching Features as Points



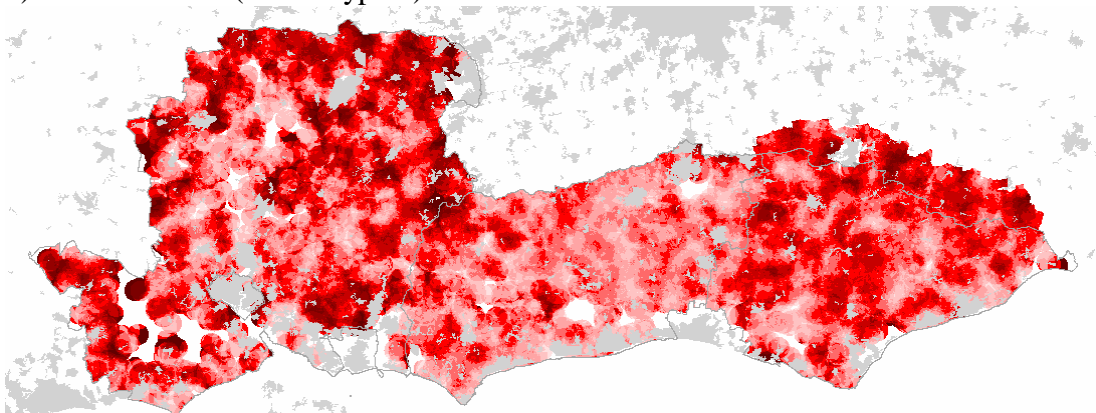
- Exact matches (Match Type 1)
- Indexical matches with the term 'farm' (Match Type 2)
- Indexical matches with other terms (Match Type 2)
- Possible matches (Match Type 3)

Figure A3.3: The Distribution of Match Types, using Grided Techniques

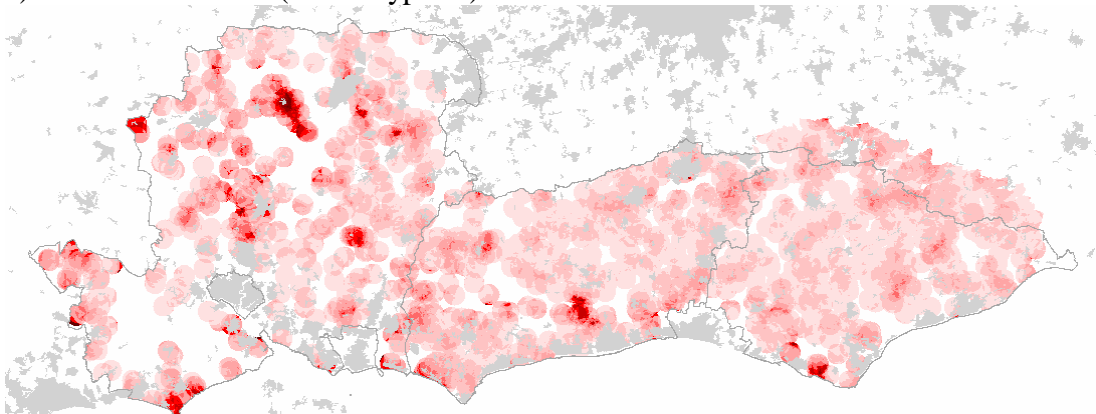
a) No candidate matches (Match type 0)



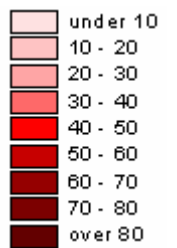
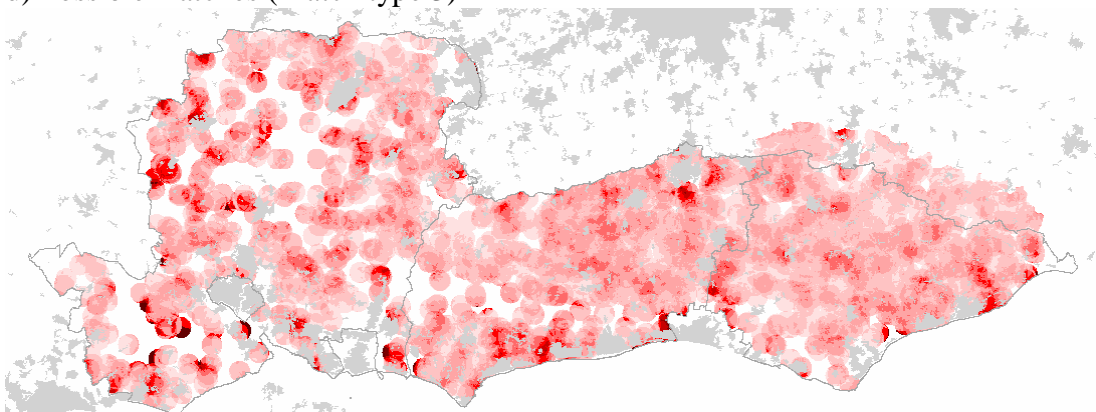
b) Exact matches (Match type 1)



c) Indexical matches (Match types 2)



d) Possible matches (Match type 3)



## Appendix Four: Inferring Standard Industrial Classifications (SIC)

A4.1 For the purposes of this study, it is important to establish the likely current use of historic farm property. For this reason, an attempt was made to assign every non-residential organisation name and address to a particular ‘slot’ within the 1980 Standard Industrial Classification (SIC). The 1980 SIC is hierarchically structured using a decimal numbering system such that any code starting 3 refers to metal using manufacturing industries and any code starting 32 refers to mechanical engineering, as indicated below. Clusters of SICs can be used to identify groups of uses of interest see (Figures A4.1 and A4.2)

BOX A4.1: A Sample of the Standard Industrial Classification (SIC)

SIC Code	SIC Description
32000	mechanical engineering
32200	metal - working machine tools and engineers tools
32210	metal - working machine tools
32211	metal cutting machine tools
32212	metal forming machine tools
32220	engineers small tools
32221	hard tipped and other metal cutting tools
32222	press tools
32223	other engineers small tools

A4.2 Inferences about activity and assignment of the corresponding SIC have been made computationally through compositional analysis of the occupier name. For names including a literal business description (eg Cotswold’s Crafts; Showcase Cinema; Foaldale Turkeys) this is possible. Each name is treated as having a ‘micro-grammar’ which potentially allows the identification of a series of functional roles:

- *medium* (the product being produced, transformed or retailed e.g., ‘Turkeys’);
- *process* (which may be represented as an activity e.g., repairs, cleaning);
- *agent* (e.g., farmer, mortgage broker, jeweller, or estate agent);
- *facility* (e.g., garage, abattoir, hospital, surgery, works).

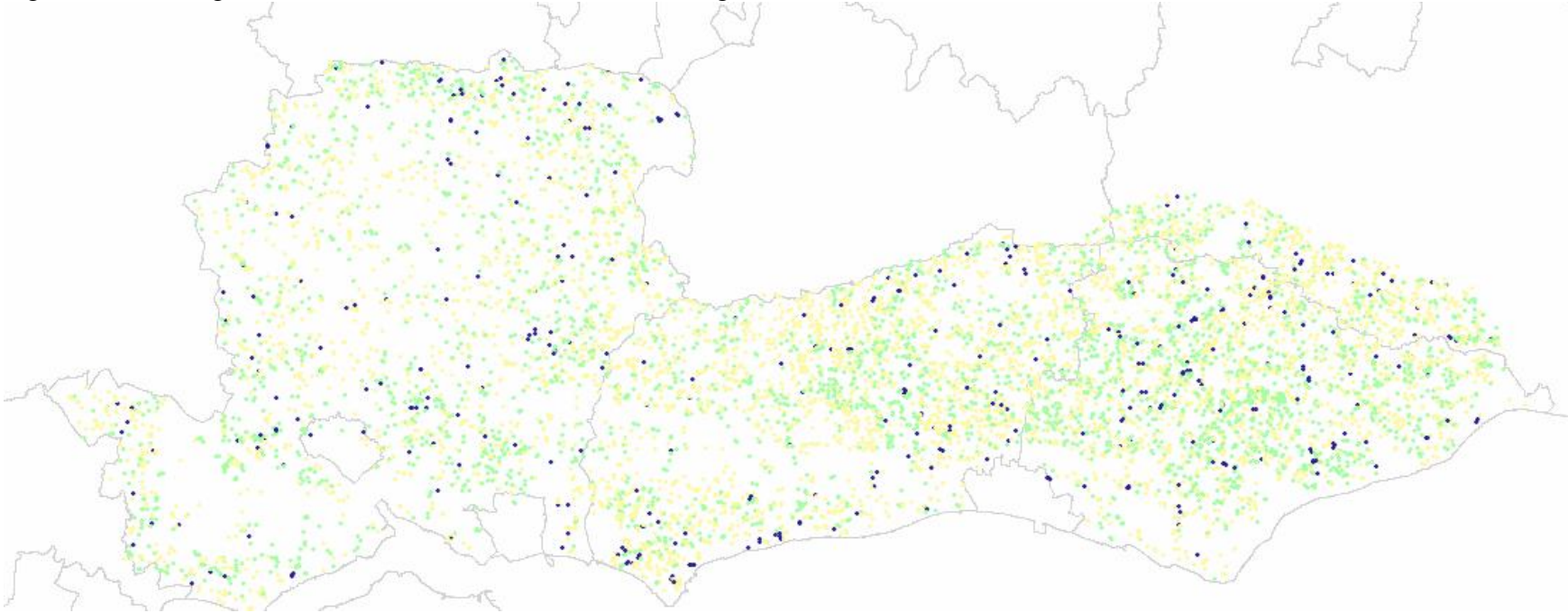
A4.3 Processing involves parsing occupier names computationally to separate them into components including a proper name (eg Thompson, or H Brown), a literal business description and, where present, an indication of whether they are a limited liability company. Having extracting the literal business description, this is then subjected to a further functional parse to identify the roles above (eg medium, process etc). The method, thus, entails the application of a series of computational grammatical rules and uses a very substantial dictionary of English language terms.

A4.4 In a small number of cases (just over four percent) it is not possible to infer the specific activity from the occupier name. These include cases where the name of the proprietor is used without any reference to what they may do. Given the addresses of the of the English Heritage features (typically X Farm), in all likelihood a large majority of the ‘unknown’ cases will represent agricultural uses. Box A4.2 highlights some of these cases.

BOX A4.2: A Selected Sample of Firms where the SIC was ‘Unknown’

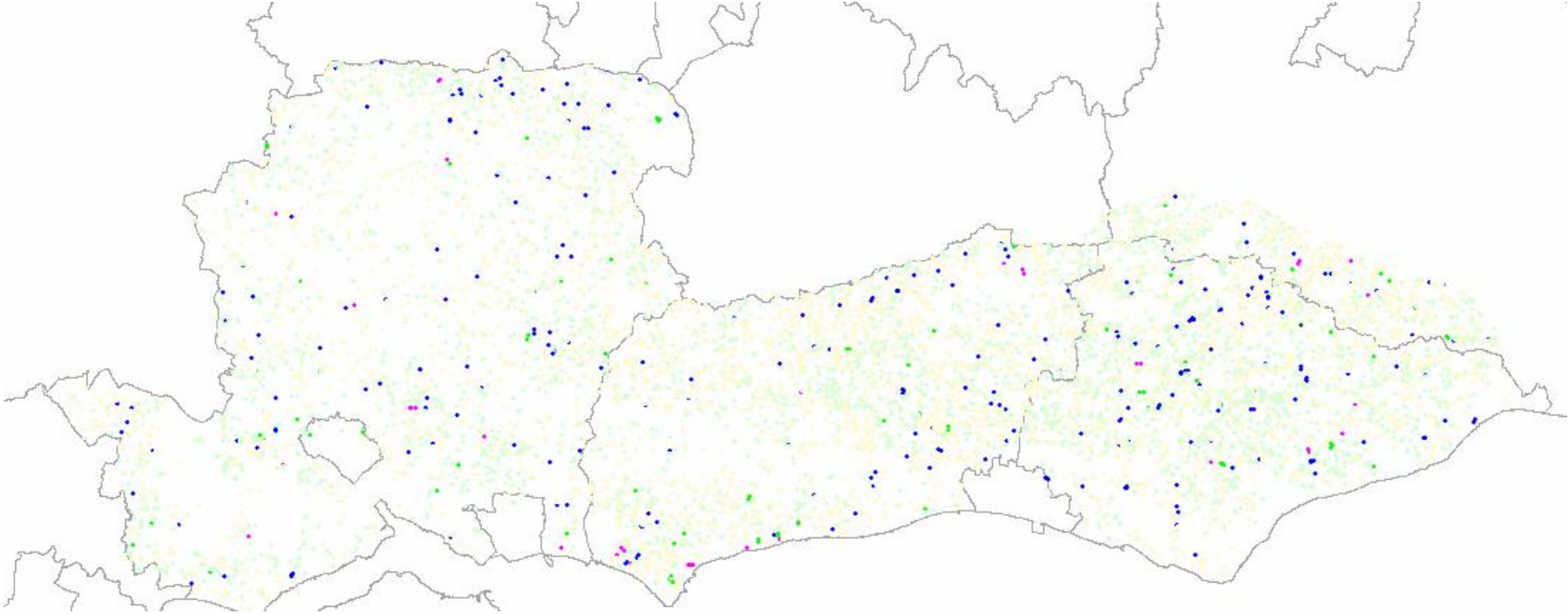
<p>R and L Monckton, located at Brook Farm  G L Mears and Son, located at, Dean Down Farm  Jeremy Daniel and Co Ltd, located at, Chapetts Farm  D K Enterprises Ltd, located at Flattenden Farm  Richard Carey and Partners, located at, Stanfords End Farm</p>
---

Figure A4.1: Using the SIC to infer Current Use at Historic Agricultural Features



- Currently in agricultural use
- Currently in non-residential use other than agricultural
- Currently in residential use

Figure A4.2: Using the SIC to infer Current Use at Historic Agricultural Features



- Currently in agricultural use
- Currently in agricultural related use
- Currently in hospitality or tourism use
- Currently in other non-residential uses
- Currently in residential use

## Appendix Five: Farm Types and Present Uses

- A5.1 Across the study area there seems to be no systematic tendency for farm buildings with different types of physical configuration to be associated with different current uses. This is evident if SICs are grouped into a series of broad activity groups (agriculture, agriculture related, hospitality or tourism, other non-residential, residential and unknown), as shown in Table A5.1.
- A5.2 Table A5.1 shows for example that 38% of all historic farm complexes are of loose courtyard (LC) type. It is also clear that 39% of all historic farm complexes in agricultural use are of loose courtyard (LC) type, as are 37% of all historic farm complexes in residential use. The table provides very little justification for suggesting that across this area particular plan types are especially likely to lend themselves to particular current uses.

Table A5.1: Current Use and Plan types

	COV	DISP	LC	LCL	LIN	LP	PAR	RC	ROW	SING
Agriculture	0.8	16.3	38.6	12.7	0.7	1.0	0.3	27.0	1.2	1.4
Agriculture related	0.0	26.5	17.6	14.7	0.0	0.0	0.0	41.2	0.0	0.0
Hospitality	2.1	16.7	50.0	12.5	0.0	0.0	0.0	16.7	0.0	2.1
Other non-residential	0.4	14.7	36.6	17.2	1.3	0.4	0.9	26.3	1.3	0.9
Residential	0.5	18.0	37.3	12.0	0.9	0.8	0.5	27.6	1.3	1.1
Unknown	0.3	14.1	33.0	20.2	0.9	0.6	0.0	29.7	0.3	0.9
<i>Total</i>	<i>0.6</i>	<i>17.1</i>	<i>37.6</i>	<i>12.8</i>	<i>0.8</i>	<i>0.8</i>	<i>0.4</i>	<i>27.4</i>	<i>1.2</i>	<i>1.2</i>

CIRC	Circular
CURV	Curvilinear
DISP	Dispersed
LIN	Linear
PAR	Parallel
LP	L-plan (attached house)
LC	Loose Courtyard
LCL	Loose Courtyard with 2 working buildings attached creating a L-plan
POLY	Polygonal
RC	Regular Courtyard
ROW	Row

- A5.3 There is, however, some systematic variation in the apparent survival chances of particular plan type as suggested by Table A5.2. This highlights the difference between LCL (L-plan Loose Courtyard) and all other plan types. It appears that farm complexes originally of LCL type are more likely to have been re-built on the same site (see para A3.4 and Figure A3.1). Use of the Chi-square test demonstrate that this tendency is statistically significant at the 95% level.

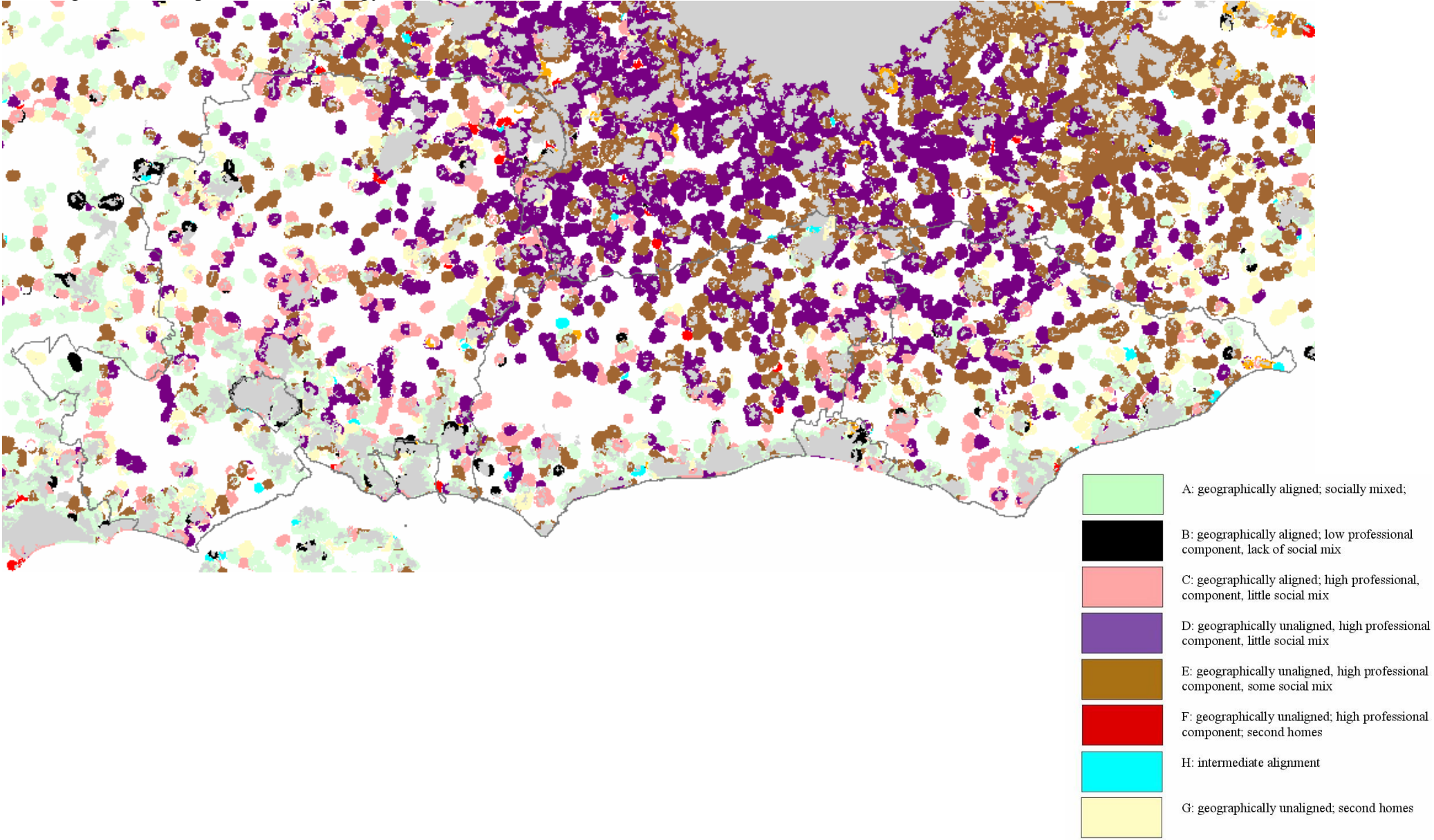
Table A5.2: Plan Types of Features Totally Demolished

	CIRC	COV	DISP	LC	LCL	LIN	LP	PAR	RC	ROW	SING
Feature totally demolished	0.0	0.4	3.6	50.9	7.4	0.5	0.6	0.2	28.7	0.4	7.4
Demolished but matched with PAF (n = 159)	0.0	0.0	4.5	45.2	14.6	0.6	1.3	0.0	32.5	0.0	0.6

## **Appendix Six: Experimental Typology of English ‘Ruralities’**

- A6.1 Figure A6.1 assigns localities Rural England into a series of functional types. Areas are classified with respect to three criteria; their pattern of workplace attachment, their social mix and the presence (or absence) of second homes. With regard to workplace attachment, a distinction is made between localities where the workforce serves a restricted set of employment centres (described here as geographically aligned) and those where residents work in a broader range of centres.
- A6.2 Where there is evidence of a broader range of workplace destinations localities are described here as geographically unaligned. Social mix is considered on two dimensions; first there is a measure of occupational segregation and secondly a measure of the representation of professional and managerial occupations. If there is a higher than average proportion of professionals and managers this is termed a ‘high professional component’. If this is accompanied by a higher than average coefficient of occupational segregation, this is described here as a lack of social mix.

Figure A6.1: Experimental Typology of English 'Ruralities'



## Appendix Seven: Farmstead Point Data Set Attributes

A7.1 The farmstead points used in this report were recorded and digitized in previous work (see para 1.2 for details). The attributes of the original farmstead data include the following fields.

Farmstead Point Data Set Attributes		
<b>PRN</b>	Unique No.	Numeric sequence chosen to fit with any existing data set PRNs
<b>Site Name</b>	Modern Name + (historic name)	Modern farm name with historic name (if different) recorded in brackets
<b>Complex Type</b>	FARMSTEAD OUTFARM	Farmstead with house Outfarm or field barn
<b>Plan Type</b>		Combination of Primary and Secondary Plan Attributes eg LC3; RCe etc.
<b>Plan Type Primary Attribute</b>	DISP  LIN PAR LP LC RC ROW	Dispersed (Note: Dispersed plans to be further classified to record variation in dispersed plans) Linear Parallel L-plan (attached house) Loose Courtyard Regular Courtyard Row plan
<b>Plan Type Secondary Attribute</b>	1, 2, 3, 4  d L u e f t y	Number of sides to loose courtyard formed by <i>working</i> agricultural buildings Additional detached elements to main plan Regular Courtyard L-plan (detached house) Regular Courtyard U-plan Regular Courtyard E-plan Regular Courtyard F-plan Regular courtyard T-plan Presence of second yard
<b>Farmhouse Position</b>	ATT LONG GAB DET UNC	Attached to agricultural range Detached, side on to yard Detached, gable on to yard Farmhouse set away from yard Uncertain
<b>Location</b>	VILL HAM FC ISO PARK SMV	Village location Hamlet Loose farmstead cluster Isolated position Located within a park Shrunken village site
<b>Survival</b>	EXT ALT ALTS DEM HOUS LOST	Extant – no apparent alteration Partial Loss – less than 50% change Significant Loss – more than 50% alteration Total Change – Farmstead survives but complete alteration to plan Farmhouse only survives Farmstead/Outfarm totally demolished
<b>Sheds</b>	SITE  SIDE	Large modern sheds on site of historic farmstead – may have destroyed historic buildings or may obscure them Large modern sheds to side of historic farmstead – suggests farmstead probably still in agricultural use
<b>Notes</b>		Free text field to add notes relating to the character or identification of a record

## Appendix Eight: Web Visibility: A Brief Overview

- A8.1 As part of the study, an experimental measure of digital information flows was constructed. This is not concerned with matters such as broadband access, but rather what might be termed 'web visibility'.
- A8.2 It rests on an analogy between a second or third level internet domain (eg 'X.com' or '[www.westsussexonline.com](http://www.westsussexonline.com)') and a 'sensor'. Any such 'sensor' anywhere in the world may reflect the presence of economic or social activity at any specific location in the High Weald (represented by a unit (full) postcode). The 'web-visibility' of any location within the AONB can be gauged by reference to the number of sensors that record its presence. This can be assessed by reference to the number of domains returned when any particular full postcode in the region is made the subject of a Google search. It might be thought of as a number of 'hits' by way of shorthand. This number is outside the sole control of any organisation at the postcode in question, but reflects (in part at least) the efforts of others in putting information about the organisation on the web.
- A8.3 This approach has been made operational by making each unique full postcode in the region the subject of an automated Google search, retrieving the Google .html document, parsing it with an sgml parser and storing each retrieved domain name together with the list of postcodes that it acknowledges. Using this procedure 67,428 different 'sensors' (hosts) were encountered in the High Weald, acknowledging 5,288 distinct unit postcodes.
- A8.4 Counting the number of 'sensors' aware of activity in each hectare cell yields a measure of variation in web visibility. In another study – of the East of England, this number of hits was found to be closely to the number of households and the number of non- residential units. This yielded a very strong relationship (accounting for 93% of the variability of web visibility in the East of England)

$$\text{Hits} = 0.41 + 0.976\text{Hhs} + 14.278*\text{Ests}$$

where

Hits is the number of distinct hosts having a knowledge of unit postcodes within 800 metres of the cell

Ests is the number of non-residential establishments within 800m of a cell, and Hhs is the number of households within 800m of a cell

- A8.5 To examine flows, it would be possible to examine the 'character' and 'location' of each 'sensor,' allowing 'sensors' to be partitioned into groups such as 'auto-sensors' (companies or groups advertising their own activity), 'directory sensors' (signposting local services), 'regulatory sensors' (eg local authority web documents holding information about planning applications) or 'academic sensors' (identifying contacts with interests in a particular field of activity).

- A8.6 Identifying the character of each sensor is actually a substantial undertaking as it involves interpretation of the domain name. For example, it is possible to distinguish sensors from various sources:
- Significant UK companies
  - Acuk
  - Local government,
  - Other UK government
  - Orguk (not -for profit)
  - Othuk- predominantly commercial
  - International
  - Unknown (predominantly commercial)
- A8.7 For the purposes of the present study, having assembled details of the web domains making reference to specific property, it is necessary to attempt to interpret the content of the web resources with a view to assessing the nature of the activity at the property in question.
- A8.8 Inferences about activity associated with the web domain and assignment of the corresponding SIC have been made computationally through compositional analysis of the web domain name. For names including a literal business description (eg Cotswold's Crafts; Showcase Cinema; Foaldale Turkeys) this is possible. Each name is treated as having a 'micro-grammar' which potentially allows the identification of a series of functional roles:
- *medium* (the product being produced, transformed or retailed e.g., 'Turkeys');
  - *process* (which may be represented as an activity e.g., repairs, cleaning);
  - *agent* (e.g., farmer, mortgage broker, jeweller, or estate agent);
  - *facility* (e.g., garage, abattoir, hospital, surgery, works).
- A8.9 Processing involves parsing names computationally to separate them into components including a proper name (eg Thompson, or H Brown), and a literal business description. Having extracting the literal business description, this is then subjected to a further functional parse to identify the roles above (eg medium, process etc). The method, thus, entails the application of a series of computational grammatical rules and uses a very substantial dictionary of English language terms.
- A8.10 Thus, the web domain '[www.plant-hire-sussex.com](http://www.plant-hire-sussex.com)' is identified as undertaking the *activity* of 'hire' for the *medium* of 'plant' within the *place* of 'sussex', and is thus assigned a SIC of 84200 (hiring out construction machinery and equipment). Similarly, the activity of a travel agent (and a SIC of 77001) is associated with 'travelagentsfinder.co.uk' on the basis of being agents who undertake activity associated with travel.

## Appendix Nine: Work Travel and Geographic Structure

- A9.1 A key issue is understanding peripherality is the extent to which locations should be seen as intrinsically remote and to imply disadvantage to their residents, and the extent to which travel distance might be the outcome of choices reflecting income differentials and variations in residential desirability.
- A9.2 Difference in density of workplaces implies different 'necessary' travel distances. More obviously as density of workplaces increases the 'necessary' distance to a workplace falls. (More specifically the distance from any point to a randomly selected workplace falls proportionally to the square root of the density of workplaces).
- A9.3 Two strictures are necessary in using density measures. Firstly, density depends on the scale at which it is measured. Therefore density is measured over a fixed radius around a moving window around each dwelling in the country in turn rather than across arbitrary tracts of differing extent such as local authority districts, but units of equal size. Second, the scale chosen must not only be homogenous across the entire domain of interest, but also appropriate to the application (employment density within 100m (far too small) or 1000km (far too big) is not appropriate).
- A9.4 Workers make choices about work travel distance in accordance with the associated wage. The effect of geographic structure might be gauged by considering the elasticity of work travel distance with respect to the distances implied by geographical structure. This elasticity might be estimated by looking at the regression of the log of the average work travel distance from any output area (from the 2001 Census) on the log of the distance implied by geographic structure. This latter distance is proportional to the reciprocal of the square root of the density of workplaces over a given radius. So if one considers the relationship between the average distance travelled from any output area to the density of workplaces 10km around that output area one obtains the expression:

$$\ln(\text{av\_distance}) = 2.4279305 + 0.3136737 * \ln(\text{recipsqrtnp10k})$$

where  $\text{recipsqrtnp10k} = 1/\sqrt{(\text{np10k})}$ , and

$\text{np10k}$  is the number of workplaces within 10 kms (from the postcode address file)

- A9.5 This performs as expected, and suggests that a 10 percent increase in the distance implied by structure implies a three percent increase in travel distance (0.3136737 being interpreted as an elasticity). The expression accounts for only 26.5% of the variability of average work-travel distance. In other words, as has been demonstrated in many other ways, geographic structure does have an impact on travel distance, but it is modest.
- A9.6 Adding further terms using other distance cut-offs, and additional terms reflecting the possibility of a distance premium for living in the rural domain, and a further (small) premium for living in an AONB one may obtain the expression:

$$\begin{aligned}\ln(\text{av\_distance}) &= 2.3258544 \\ &+ 0.1029803 \ln(\text{recipsqrtnp5k}) \\ &+ 0.1870000 \ln(\text{recipsqrtnp10k}) \\ &+ 0.0199076 \ln(\text{recipsqrtnp20k}) \\ &+ 0.1217688 \text{rural\_dummy} + 0.0577522 \text{aonb\_dummy}\end{aligned}$$

where density terms for 5km and 20km cut-offs are defined by analogy with the 10km term introduced above, and rural\_dummy and aonb\_dummy take a value of 1 if the dwelling is in the rural domain or an AONB respectively (and 0 otherwise).

- A9.7 The last set of results shows greater sensitivity to variation at the 10km scale than at either of the others. They would also bear the interpretation that other things being equal (including these density measures) living within the in the rural domain might be associated with travel distances 13% higher than in the urban domain with a further premium of 5.9% for living in an AONB!.
- A9.8 Perhaps, however, it is the variations around the expectations which are of the greatest interest.

## Appendix Ten: Access to Service Example List

A10.1 The table below contains a complete example of a Access to Service list as outlined in Chapter 7 (paras 7.1-7.4). The list, contains the distances to all the collection of facility types within 30km from a specified postcode. Thus indicating for example, that the nearest ATM is 393 metres away, and that there are four post offices within 3.3kms.

**Table A10.1: Example Distance List (for TN11 8HJ)**

[393.011, [atm], 6], [400.642, [petrol, station], 6], [434.115, [post, office], 6], [623.02, [primary, school], 6], [2614.36, [post, office], 6], [3182.86, [petrol, station], 6], [3198.17, [doctors, surgery], 6], [3227.09, [primary, school], 6], [3244.87, [post, office], 6], [3281.51, [post, office], 6], [3287.96, [atm], 6], [3313.63, [primary, school], 6], [3355.86, [doctors, surgery], 6], [3440.18, [primary, school], 6], [3557.47, [post, office], 6], [3654.09, [petrol, station], 6], [3830.99, [petrol, station], 6], [3835.26, [secondary, school], 6], [3924.13, [atm], 6], [3925.01, [petrol, station], 6], [3980.98, [primary, school], 6], [4067.67, [primary, school], 6], [4099.12, [atm], 6], [4099.25, [secondary, school], 6], [4167.24, [dentist], 6], [4373.36, [primary, school], 6], [4392.54, [post, office], 6], [4404.23, [atm], 6], [4406.04, [petrol, station], 6], [4445.63, [atm], 6], [4445.63, [supermarket], 6], [4515.0, [post, office], 6], [4541.58, [atm], 6], [4622.51, [atm], 6], [4622.51, [bbgs], 6], [4639.3, [primary, school], 6], [4642.22, [atm], 6], [4642.22, [bbgs], 6], [4650.42, [bbgs], 6], [4670.12, [atm], 6], [4670.12, [bbgs], 6], [4670.12, [supermarket], 6], [4689.97, [post, office], 6], [4693.36, [atm], 6], [4693.36, [bbgs], 6], [4707.16, [atm], 6], [4723.49, [petrol, station], 6], [4724.6, [atm], 6], [4724.6, [bbgs], 6], [4742.61, [atm], 6], [4742.61, [bbgs], 6], [4776.29, [primary, school], 6], [4776.71, [post, office], 6], [4777.07, [petrol, station], 6], [4792.02, [atm], 6], [4792.02, [bbgs], 6], [4798.86, [atm], 6], [4798.86, [bbgs], 6], [4800.19, [atm], 6], [4800.19, [bbgs], 6], [4800.62, [supermarket], 6], [4801.41, [bbgs], 6], [4824.78, [dentist], 6], [4844.24, [atm], 6], [4844.24, [supermarket], 6], [4847.25, [doctors, surgery], 6], [4869.15, [dentist], 6], [4875.91, [dentist], 6], [4877.57, [doctors, surgery], 6], [4884.01, [dentist], 6], [4885.35, [secondary, school], 6], [4900.62, [primary, school], 6], [4928.63, [doctors, surgery], 6], [4932.1, [primary, school], 6], [4989.3, [atm], 6], [5011.68, [dentist], 6], [5017.63, [post, office], 6], [5053.64, [doctors, surgery], 6], [5077.74, [petrol, station], 6], [5101.45, [post, office], 6], [5182.67, [primary, school], 6], [5253.19, [primary, school], 6], [5322.14, [secondary, school], 6], [5352.17, [atm], 6], [5401.14, [doctors, surgery], 6], [5415.97, [atm], 6], [5437.09, [secondary, school], 6], [5557.05, [primary, school], 6], [5570.12, [dentist], 6], [5631.2, [atm], 6], [5631.2, [supermarket], 6], [5636.23, [primary, school], 6], [5647.95, [post, office], 6], [5661.95, [atm], 6], [5664.2, [doctors, surgery], 6], [5675.22, [post, office], 6], [5684.22, [atm], 6], [5684.22, [bbgs], 6], [5697.51, [atm], 6], [5828.66, [secondary, school], 6], [5844.46, [atm], 6], [5844.46, [bbgs], 6], [6005.39, [doctors, surgery], 6], [6264.17, [secondary, school], 6], [6287.25, [secondary, school], 6], [6300.47, [post, office], 6], [6304.3, [atm], 6], [6304.3, [supermarket], 6], [6354.55, [primary, school], 6], [6359.86, [primary, school], 6], [6550.19, [primary, school], 6], [6585.71, [secondary, school], 6], [6620.58, [primary, school], 6], [6732.47, [secondary, school], 6], [6755.56, [primary, school], 6], [6772.33, [primary, school], 6], [6785.85, [doctors, surgery], 6], [6786.33, [dentist], 6], [6851.34,

[primary, school], 6], [6871.13, [primary, school], 6], [6883.44, [dentist], 6], [6890.77, [post, office], 6], [6906.68, [primary, school], 6], [6910.07, [petrol, station], 6], [6917.56, [post, office], 6], [6924.64, [atm], 6], [6947.64, [primary, school], 6], [6953.11, [atm], 6], [6986.73, [atm], 6], [7015.29, [secondary, school], 6], [7127.19, [atm], 6], [7134.9, [supermarket], 6], [7159.26, [post, office], 6], [7164.67, [primary, school], 6], [7166.48, [atm], 6], [7179.98, [atm], 6], [7188.8, [atm], 6], [7194.18, [petrol, station], 6], [7210.12, [post, office], 6], [7210.76, [atm], 6], [7211.4, [doctors, surgery], 6], [7216.74, [dentist], 6], [7217.41, [dentist], 6], [7292.63, [petrol, station], 6], [7295.69, [petrol, station], 6], [7422.01, [primary, school], 6], [7424.1, [doctors, surgery], 6], [7436.33, [dentist], 6], [7493.05, [dentist], 6], [7518.79, [atm], 6], [7518.79, [bbgs], 6], [7571.19, [atm], 6], [7577.28, [dentist], 6], [7640.9, [supermarket], 6], [7650.78, [doctors, surgery], 6], [7664.38, [atm], 6], [7680.16, [atm], 6], [7684.59, [dentist], 6], [7729.26, [atm], 6], [7729.44, [dentist], 6], [7752.74, [primary, school], 6], [7754.54, [primary, school], 6], [7759.89, [dentist], 6], [7771.3, [dentist], 6], [7824.65, [atm], 6], [7824.65, [post, office], 6], [7837.38, [atm], 6], [7847.66, [atm], 6], [7847.66, [bbgs], 6], [7847.66, [supermarket], 6], [7851.14, [atm], 6], [7864.14, [atm], 6], [7864.14, [bbgs], 6], [7864.71, [atm], 6], [7872.71, [petrol, station], 6], [7873.11, [post, office], 6], [7885.17, [primary, school], 6], [7893.08, [dentist], 6], [7903.28, [post, office], 6], [7913.65, [dentist], 6], [7927.65, [dentist], 6], [7933.69, [atm], 6], [7933.69, [bbgs], 6], [7937.85, [post, office], 6], [7951.5, [atm], 6], [7951.5, [bbgs], 6], [7970.44, [atm], 6], [7970.44, [bbgs], 6], [7976.85, [atm], 6], [8019.1, [dentist], 6], [8019.82, [petrol, station], 6], [8022.42, [bbgs], 6], [8024.13, [atm], 6], [8042.24, [atm], 6], [8042.24, [bbgs], 6], [8048.19, [primary, school], 6], [8057.3, [bbgs], 6], [8060.36, [atm], 6], [8066.78, [atm], 6], [8066.78, [bbgs], 6], [8097.14, [dentist], 6], [8104.31, [doctors, surgery], 6], [8104.34, [dentist], 6], [8106.29, [doctors, surgery], 6], [8137.78, [atm], 6], [8137.78, [bbgs], 6], [8162.55, [dentist], 6], [8169.48, [dentist], 6], [8169.48, [doctors, surgery], 6], [8180.19, [atm], 6], [8180.19, [bbgs], 6], [8207.34, [petrol, station], 6], [8218.9, [primary, school], 6], [8233.67, [bbgs], 6], [8248.82, [atm], 6], [8248.82, [bbgs], 6], [8266.39, [bbgs], 6], [8266.39, [supermarket], 6], [8275.02, [atm], 6], [8275.02, [bbgs], 6], [8277.56, [bbgs], 6], [8288.79, [dentist], 6], [8303.76, [doctors, surgery], 6], [8303.87, [atm], 6], [8303.87, [bbgs], 6], [8317.4, [atm], 6], [8317.4, [supermarket], 6], [8330.95, [atm], 6], [8330.95, [post, office], 6], [8335.5, [atm], 6], [8335.5, [bbgs], 6], [8336.86, [bbgs], 6], [8343.41, [atm], 6], [8343.41, [bbgs], 6], [8353.61, [dentist], 6], [8361.73, [doctors, surgery], 6], [8366.12, [bbgs], 6], [8387.82, [atm], 6], [8387.82, [bbgs], 6], [8397.14, [bbgs], 6], [8406.17, [atm], 6], [8406.17, [doctors, surgery], 6], [8415.72, [primary, school], 6], [8468.68, [dentist], 6], [8474.1, [atm], 6], [8474.1, [bbgs], 6], [8476.71, [supermarket], 6], [8485.97, [bbgs], 6], [8508.18, [dentist], 6], [8512.47, [atm], 6], [8512.47, [bbgs], 6], [8573.89, [dentist], 6], [8575.66, [atm], 6], [8601.36, [post, office], 6], [8613.54, [secondary, school], 6], [8620.51, [petrol, station], 6], [8636.31, [petrol, station], 6], [8661.79, [dentist], 6], [8681.66, [atm], 6], [8694.72, [primary, school], 6], [8701.63, [doctors, surgery], 6], [8721.17, [atm], 6], [8721.17, [supermarket], 6], [8733.3, [primary, school], 6], [8746.88, [doctors, surgery], 6], [8759.13, [primary, school], 6], [8768.33, [dentist], 6], [8859.48, [primary, school], 6], [8993.0, [primary, school], 6], [9040.76, [dentist], 6], [9062.67, [primary, school], 6], [9080.33, [doctors, surgery], 6], [9081.38, [dentist], 6], [9093.33, [atm], 6], [9093.33,

[supermarket], 6], [9093.58, [dentist], 6], [9159.59, [atm], 6], [9167.54, [atm], 6], [9170.53, [post, office], 6], [9202.16, [atm], 6], [9210.9, [post, office], 6], [9222.36, [atm], 6], [9257.66, [petrol, station], 6], [9260.56, [doctors, surgery], 6], [9264.99, [atm], 6], [9276.2, [primary, school], 6], [9323.36, [supermarket], 6], [9342.26, [post, office], 6], [9348.65, [atm], 6], [9359.65, [atm], 6], [9375.39, [atm], 6], [9408.81, [dentist], 6], [9496.45, [petrol, station], 6], [9513.61, [primary, school], 6], [9620.02, [atm], 6], [9667.85, [primary, school], 6], [9678.02, [dentist], 6], [9678.02, [post, office], 6], [9687.47, [petrol, station], 6], [9701.92, [atm], 6], [9704.06, [primary, school], 6], [9715.16, [primary, school], 6], [9743.06, [doctors, surgery], 6], [9829.06, [bbgs], 6], [9833.6, [primary, school], 6], [9853.24, [post, office], 6], [9896.36, [atm], 6], [9896.36, [bbgs], 6], [9906.49, [atm], 6], [9906.49, [bbgs], 6], [9907.39, [atm], 6], [9907.39, [bbgs], 6], [9931.17, [atm], 6], [9931.17, [bbgs], 6], [9931.81, [supermarket], 6], [9936.53, [doctors, surgery], 6], [9939.05, [primary, school], 6], [9960.37, [primary, school], 6], [9967.56, [post, office], 6], [9971.57, [atm], 6], [9971.57, [supermarket], 6], [9984.79, [petrol, station], 6], [9988.98, [atm], 6], [10015.4, [primary, school], 6], [10030.2, [dentist], 6], [10049.1, [dentist], 6], [10049.5, [doctors, surgery], 6], [10058.1, [doctors, surgery], 6], [10065.2, [atm], 6], [10065.2, [bbgs], 6], [10070.7, [primary, school], 6], [10095.1, [supermarket], 6], [10187.5, [post, office], 6], [10229.8, [secondary, school], 6], [10247.5, [petrol, station], 6], [10256.0, [dentist], 6], [10264.8, [atm], 6], [10266.3, [secondary, school], 6], [10307.8, [post, office], 6], [10346.3, [petrol, station], 6], [10356.7, [atm], 6], [10360.6, [atm], 6], [10365.1, [post, office], 6], [10365.8, [post, office], 6], [10383.2, [primary, school], 6], [10406.1, [atm], 6], [10406.1, [dentist], 6], [10529.1, [atm], 6], [10562.9, [petrol, station], 6], [10616.0, [post, office], 6], [10714.6, [primary, school], 6], [10783.7, [supermarket], 6], [10788.9, [doctors, surgery], 6], [10833.7, [post, office], 6], [10846.0, [atm], 6], [10846.0, [supermarket], 6], [10891.7, [primary, school], 6], [11069.8, [primary, school], 6], [11144.9, [atm], 6], [11144.9, [supermarket], 6], [11166.9, [primary, school], 6], [11211.1, [petrol, station], 6], [11221.8, [primary, school], 6], [11428.3, [doctors, surgery], 6], [11471.4, [primary, school], 6], [11821.3, [primary, school], 6], [11851.3, [dentist], 6], [12070.0, [post, office], 6], [12245.0, [dentist], 6], [12302.2, [post, office], 6], [12316.0, [bbgs], 6], [12322.7, [atm], 6], [12343.3, [doctors, surgery], 6], [12353.1, [post, office], 6], [12362.7, [atm], 6], [12362.7, [bbgs], 6], [12369.6, [atm], 6], [12369.6, [bbgs], 6], [12379.5, [primary, school], 6], [12424.7, [atm], 6], [12424.8, [post, office], 6], [12430.1, [post, office], 6], [12436.2, [supermarket], 6], [12456.9, [primary, school], 6], [12462.3, [doctors, surgery], 6], [12526.9, [primary, school], 6], [12551.8, [doctors, surgery], 6], [12553.3, [supermarket], 6], [12589.9, [petrol, station], 6], [12614.2, [post, office], 6], [12617.8, [atm], 6], [12634.1, [dentist], 6], [12636.7, [dentist], 6], [12669.6, [atm], 6], [12669.6, [bbgs], 6], [12675.6, [post, office], 6], [12703.7, [petrol, station], 6], [12716.7, [primary, school], 6], [12717.5, [dentist], 6], [12755.3, [post, office], 6], [12786.8, [atm], 6], [12786.8, [bbgs], 6], [12787.4, [atm], 6], [12794.6, [atm], 6], [12804.7, [post, office], 6], [12805.6, [primary, school], 6], [12823.6, [atm], 6], [12823.6, [bbgs], 6], [12854.5, [secondary, school], 6], [12858.8, [atm], 6], [12858.8, [bbgs], 6], [12862.4, [atm], 6], [12862.4, [bbgs], 6], [12921.4, [supermarket], 6], [12928.5, [primary, school], 6], [12955.0, [petrol, station], 6], [13067.0, [primary, school], 6], [13125.9, [doctors, surgery], 6], [13175.8, [supermarket], 6], [13345.1, [primary, school], 6], [13433.6, [petrol, station], 6],

[13610.7, [secondary, school], 6], [13640.9, [primary, school], 6],  
[13844.7, [primary, school], 6], [14024.1, [petrol, station], 6],  
[14317.1, [doctors, surgery], 6], [14341.0, [petrol, station], 6],  
[14346.0, [atm], 6], [14380.6, [post, office], 6], [14387.9, [primary,  
school], 6], [14393.5, [atm], 6], [14463.4, [primary, school], 6],  
[14506.6, [primary, school], 6], [14522.8, [petrol, station], 6],  
[14545.6, [post, office], 6], [14619.4, [petrol, station], 6],  
[14633.2, [primary, school], 6], [14701.9, [primary, school], 6],  
[14716.6, [petrol, station], 6], [14728.9, [atm], 6], [14758.6,  
[primary, school], 6], [14843.7, [atm], 6], [14849.3, [petrol,  
station], 6], [14890.0, [primary, school], 6], [14937.2, [atm], 6],  
[15006.4, [post, office], 6], [15046.4, [petrol, station], 6],  
[15064.4, [post, office], 6], [15068.2, [primary, school], 6],  
[15193.1, [atm], 6], [15327.1, [petrol, station], 6], [15383.4,  
[primary, school], 6], [15387.7, [atm], 6], [15387.7, [bbgs], 6],  
[15425.6, [atm], 6], [15425.6, [bbgs], 6], [15442.5, [bbgs], 6],  
[15455.8, [atm], 6], [15455.8, [bbgs], 6], [15490.6, [post, office],  
6], [15493.4, [primary, school], 6], [15502.1, [doctors, surgery], 6],  
[15505.9, [bbgs], 6], [15506.3, [atm], 6], [15511.5, [dentist], 6],  
[15518.2, [supermarket], 6], [15521.1, [atm], 6], [15521.1, [dentist],  
6], [15566.1, [atm], 6], [15566.1, [bbgs], 6], [15593.9, [post,  
office], 6], [15599.2, [dentist], 6], [15612.9, [primary, school], 6],  
[15627.0, [atm], 6], [15627.0, [bbgs], 6], [15627.0, [doctors,  
surgery], 6], [15627.0, [supermarket], 6], [15638.6, [post, office],  
6], [15645.0, [atm], 6], [15645.0, [primary, school], 6], [15660.6,  
[post, office], 6], [15668.0, [post, office], 6], [15702.8, [atm], 6],  
[15712.4, [primary, school], 6], [15717.5, [post, office], 6],  
[15757.6, [dentist], 6], [15794.3, [atm], 6], [15794.3, [bbgs], 6],  
[15794.3, [supermarket], 6], [15808.3, [primary, school], 6],  
[15813.8, [post, office], 6], [15818.7, [secondary, school], 6],  
[15875.8, [doctors, surgery], 6], [15891.1, [doctors, surgery], 6],  
[15900.0, [post, office], 6], [15930.6, [atm], 6], [15930.6, [primary,  
school], 6], [15953.0, [primary, school], 6], [15980.3, [doctors,  
surgery], 6], [15986.5, [atm], 6], [16053.1, [atm], 6], [16053.1,  
[bbgs], 6], [16059.1, [atm], 6], [16069.9, [post, office], 6],  
[16074.9, [atm], 6], [16074.9, [supermarket], 6], [16092.0, [primary,  
school], 6], [16094.7, [petrol, station], 6], [16125.9, [dentist], 6],  
[16139.9, [primary, school], 6], [16153.4, [atm], 6], [16162.0,  
[dentist], 6], [16177.0, [supermarket], 6], [16178.4, [bbgs], 6],  
[16178.4, [dentist], 6], [16190.2, [atm], 6], [16190.2, [bbgs], 6],  
[16224.4, [secondary, school], 6], [16239.4, [primary, school], 6],  
[16257.4, [atm], 6], [16257.4, [bbgs], 6], [16257.4, [dentist], 6],  
[16282.3, [atm], 6], [16289.3, [petrol, station], 6], [16298.5, [atm],  
6], [16298.5, [bbgs], 6], [16323.1, [atm], 6], [16324.3, [primary,  
school], 6], [16330.8, [post, office], 6], [16331.1, [atm], 6],  
[16331.1, [supermarket], 6], [16332.1, [dentist], 6], [16341.1,  
[primary, school], 6], [16341.1, [secondary, school], 6], [16349.9,  
[atm], 6], [16349.9, [bbgs], 6], [16371.3, [post, office], 6],  
[16374.6, [atm], 6], [16374.6, [bbgs], 6], [16389.2, [petrol,  
station], 6], [16395.3, [dentist], 6], [16416.5, [doctors, surgery],  
6], [16423.6, [primary, school], 6], [16462.0, [primary, school], 6],  
[16468.6, [petrol, station], 6], [16478.2, [post, office], 6],  
[16481.1, [post, office], 6], [16492.1, [primary, school], 6],  
[16522.4, [petrol, station], 6], [16525.9, [atm], 6], [16551.7, [atm],  
6], [16559.2, [primary, school], 6], [16580.4, [primary, school], 6],  
[16627.7, [post, office], 6], [16643.3, [doctors, surgery], 6],  
[16662.1, [atm], 6], [16672.8, [primary, school], 6], [16677.2,  
[doctors, surgery], 6], [16690.7, [petrol, station], 6], [16694.3,  
[post, office], 6], [16704.7, [atm], 6], [16705.4, [primary, school],  
6], [16724.0, [petrol, station], 6], [16730.9, [primary, school], 6],  
[16743.3, [doctors, surgery], 6], [16744.8, [post, office], 6],

[16754.5, [post, office], 6], [16772.0, [dentist], 6], [16779.6, [post, office], 6], [16784.0, [primary, school], 6], [16810.6, [primary, school], 6], [16888.7, [dentist], 6], [16895.4, [dentist], 6], [16944.1, [dentist], 6], [16950.3, [atm], 6], [16950.3, [bbgs], 6], [16951.2, [primary, school], 6], [16953.2, [atm], 6], [16962.5, [primary, school], 6], [16971.8, [doctors, surgery], 6], [16976.2, [doctors, surgery], 6], [16983.2, [primary, school], 6], [16983.8, [atm], 6], [16983.8, [bbgs], 6], [16995.4, [petrol, station], 6], [16999.2, [primary, school], 6], [17001.0, [dentist], 6], [17005.1, [atm], 6], [17012.6, [bbgs], 6], [17029.0, [atm], 6], [17029.0, [bbgs], 6], [17033.2, [atm], 6], [17033.2, [bbgs], 6], [17039.0, [atm], 6], [17039.0, [bbgs], 6], [17039.0, [dentist], 6], [17040.9, [atm], 6], [17040.9, [bbgs], 6], [17045.9, [atm], 6], [17046.6, [post, office], 6], [17070.4, [primary, school], 6], [17072.0, [doctors, surgery], 6], [17080.6, [atm], 6], [17080.6, [bbgs], 6], [17093.1, [dentist], 6], [17118.5, [atm], 6], [17158.0, [atm], 6], [17158.0, [bbgs], 6], [17158.0, [dentist], 6], [17158.0, [supermarket], 6], [17158.6, [petrol, station], 6], [17176.3, [primary, school], 6], [17195.4, [atm], 6], [17235.7, [petrol, station], 6], [17242.0, [supermarket], 6], [17261.0, [doctors, surgery], 6], [17264.5, [petrol, station], 6], [17282.5, [dentist], 6], [17293.9, [primary, school], 6], [17296.9, [primary, school], 6], [17307.2, [primary, school], 6], [17323.4, [atm], 6], [17327.2, [atm], 6], [17370.4, [atm], 6], [17409.7, [post, office], 6], [17418.0, [atm], 6], [17430.2, [secondary, school], 6], [17480.4, [atm], 6], [17480.4, [bbgs], 6], [17501.6, [post, office], 6], [17522.2, [post, office], 6], [17527.5, [post, office], 6], [17530.3, [supermarket], 6], [17572.4, [post, office], 6], [17584.6, [dentist], 6], [17591.5, [primary, school], 6], [17592.1, [dentist], 6], [17592.9, [atm], 6], [17592.9, [bbgs], 6], [17595.7, [atm], 6], [17595.7, [supermarket], 6], [17602.2, [primary, school], 6], [17609.4, [doctors, surgery], 6], [17611.5, [dentist], 6], [17617.1, [post, office], 6], [17627.1, [atm], 6], [17627.1, [bbgs], 6], [17647.0, [primary, school], 6], [17676.2, [primary, school], 6], [17682.7, [dentist], 6], [17694.7, [petrol, station], 6], [17716.8, [dentist], 6], [17722.5, [doctors, surgery], 6], [17738.2, [primary, school], 6], [17740.5, [secondary, school], 6], [17741.9, [primary, school], 6], [17782.3, [dentist], 6], [17782.3, [doctors, surgery], 6], [17795.9, [primary, school], 6], [17803.1, [atm], 6], [17803.1, [bbgs], 6], [17803.1, [supermarket], 6], [17890.1, [post, office], 6], [17893.8, [petrol, station], 6], [17916.5, [bbgs], 6], [17916.5, [dentist], 6], [17942.3, [post, office], 6], [17942.5, [atm], 6], [17952.6, [atm], 6], [17954.0, [atm], 6], [17982.0, [petrol, station], 6], [17982.2, [atm], 6], [17983.5, [petrol, station], 6], [17996.0, [atm], 6], [18014.3, [petrol, station], 6], [18024.2, [petrol, station], 6], [18027.0, [post, office], 6], [18038.4, [primary, school], 6], [18041.0, [post, office], 6], [18050.9, [atm], 6], [18050.9, [bbgs], 6], [18066.4, [petrol, station], 6], [18072.8, [primary, school], 6], [18075.2, [atm], 6], [18191.9, [atm], 6], [18207.8, [secondary, school], 6], [18216.0, [doctors, surgery], 6], [18292.3, [petrol, station], 6], [18318.4, [primary, school], 6], [18341.7, [post, office], 6], [18345.0, [atm], 6], [18348.9, [primary, school], 6], [18383.4, [primary, school], 6], [18427.4, [primary, school], 6], [18566.7, [atm], 6], [18586.2, [primary, school], 6], [18669.5, [atm], 6], [18693.4, [primary, school], 6], [18829.4, [petrol, station], 6], [18831.0, [primary, school], 6], [18854.4, [atm], 6], [18854.4, [post, office], 6], [18867.5, [post, office], 6], [18893.2, [primary, school], 6], [18922.8, [primary, school], 6], [19059.8, [atm], 6], [19115.9, [post, office], 6], [19128.3, [secondary, school], 6], [19128.9, [atm], 6], [19134.6, [primary, school], 6], [19168.3, [doctors, surgery], 6], [19175.4, [atm], 6], [19175.4, [doctors,

surgery], 6], [19189.2, [primary, school], 6], [19197.1, [atm], 6], [19197.1, [dentist], 6], [19198.0, [petrol, station], 6], [19200.2, [post, office], 6], [19232.6, [atm], 6], [19258.8, [primary, school], 6], [19279.5, [atm], 6], [19280.4, [post, office], 6], [19283.0, [petrol, station], 6], [19283.3, [primary, school], 6], [19289.8, [petrol, station], 6], [19294.9, [atm], 6], [19381.3, [doctors, surgery], 6], [19381.3, [supermarket], 6], [19423.5, [primary, school], 6], [19553.2, [post, office], 6], [19601.0, [petrol, station], 6], [19747.9, [petrol, station], 6], [19785.1, [primary, school], 6], [19865.4, [atm], 6], [19865.4, [dentist], 6], [19878.5, [atm], 6], [19878.5, [bbgs], 6], [19880.1, [post, office], 6], [19898.5, [atm], 6], [19899.5, [primary, school], 6], [19917.6, [post, office], 6], [19920.1, [atm], 6], [19922.7, [doctors, surgery], 6], [19930.9, [petrol, station], 6], [19939.3, [doctors, surgery], 6], [19947.8, [atm], 6], [19947.8, [post, office], 6], [19950.2, [primary, school], 6], [19950.6, [primary, school], 6], [19958.5, [dentist], 6], [19959.5, [post, office], 6], [19974.3, [dentist], 6], [19993.2, [atm], 6], [20004.1, [doctors, surgery], 6], [20025.4, [doctors, surgery], 6], [20025.4, [post, office], 6], [20056.2, [petrol, station], 6], [20076.5, [supermarket], 6], [20077.7, [petrol, station], 6], [20086.1, [petrol, station], 6], [20111.0, [post, office], 6], [20111.5, [atm], 6], [20111.5, [bbgs], 6], [20111.5, [supermarket], 6], [20119.8, [atm], 6], [20119.8, [supermarket], 6], [20124.1, [atm], 6], [20139.5, [post, office], 6], [20141.6, [dentist], 6], [20169.8, [atm], 6], [20177.3, [dentist], 6], [20177.3, [primary, school], 6], [20183.7, [primary, school], 6], [20189.3, [atm], 6], [20189.3, [bbgs], 6], [20196.7, [dentist], 6], [20198.2, [doctors, surgery], 6], [20200.5, [dentist], 6], [20203.2, [petrol, station], 6], [20205.7, [atm], 6], [20205.7, [bbgs], 6], [20216.1, [primary, school], 6], [20324.8, [primary, school], 6], [20332.5, [primary, school], 6], [20359.8, [secondary, school], 6], [20376.0, [post, office], 6], [20377.2, [primary, school], 6], [20412.1, [primary, school], 6], [20465.3, [primary, school], 6], [20468.7, [post, office], 6], [20477.9, [atm], 6], [20479.9, [post, office], 6], [20502.6, [petrol, station], 6], [20510.6, [doctors, surgery], 6], [20513.0, [atm], 6], [20535.9, [atm], 6], [20567.3, [doctors, surgery], 6], [20567.3, [primary, school], 6], [20577.7, [petrol, station], 6], [20583.6, [primary, school], 6], [20588.1, [post, office], 6], [20624.2, [atm], 6], [20638.3, [atm], 6], [20647.6, [primary, school], 6], [20666.4, [primary, school], 6], [20686.3, [petrol, station], 6], [20695.1, [doctors, surgery], 6], [20723.0, [petrol, station], 6], [20734.9, [post, office], 6], [20740.6, [secondary, school], 6], [20764.0, [petrol, station], 6], [20785.0, [atm], 6], [20785.0, [supermarket], 6], [20785.3, [post, office], 6], [20830.4, [doctors, surgery], 6], [20849.0, [atm], 6], [20849.0, [bbgs], 6], [20860.8, [atm], 6], [20920.8, [post, office], 6], [20924.3, [primary, school], 6], [20945.8, [dentist], 6], [20954.4, [primary, school], 6], [20959.1, [petrol, station], 6], [20972.3, [atm], 6], [20974.9, [doctors, surgery], 6], [21010.1, [doctors, surgery], 6], [21032.1, [dentist], 6], [21053.5, [petrol, station], 6], [21068.0, [petrol, station], 6], [21099.5, [doctors, surgery], 6], [21130.5, [secondary, school], 6], [21145.8, [atm], 6], [21145.8, [dentist], 6], [21147.8, [atm], 6], [21147.8, [supermarket], 6], [21188.5, [dentist], 6], [21189.5, [atm], 6], [21189.5, [doctors, surgery], 6], [21204.5, [atm], 6], [21210.7, [primary, school], 6], [21219.4, [primary, school], 6], [21227.4, [secondary, school], 6], [21247.9, [dentist], 6], [21253.0, [doctors, surgery], 6], [21265.1, [atm], 6], [21265.1, [bbgs], 6], [21284.1, [dentist], 6], [21286.4, [primary, school], 6], [21294.7, [atm], 6], [21294.7, [bbgs], 6], [21340.5, [primary, school], 6], [21340.5, [secondary, school], 6], [21343.0, [atm], 6], [21348.2, [doctors, surgery], 6], [21348.3,

[atm], 6], [21348.3, [bbgs], 6], [21360.0, [primary, school], 6], [21360.0, [secondary, school], 6], [21364.9, [dentist], 6], [21365.8, [atm], 6], [21365.8, [bbgs], 6], [21374.5, [atm], 6], [21374.5, [bbgs], 6], [21374.8, [post, office], 6], [21385.1, [atm], 6], [21385.1, [bbgs], 6], [21407.0, [atm], 6], [21428.1, [supermarket], 6], [21450.8, [primary, school], 6], [21455.3, [atm], 6], [21455.3, [bbgs], 6], [21459.4, [supermarket], 6], [21475.9, [atm], 6], [21476.9, [atm], 6], [21476.9, [post, office], 6], [21483.2, [doctors, surgery], 6], [21495.3, [atm], 6], [21495.3, [bbgs], 6], [21499.6, [dentist], 6], [21506.3, [atm], 6], [21510.1, [secondary, school], 6], [21517.8, [doctors, surgery], 6], [21526.6, [dentist], 6], [21528.3, [bbgs], 6], [21528.6, [primary, school], 6], [21555.4, [atm], 6], [21565.1, [doctors, surgery], 6], [21581.9, [post, office], 6], [21587.9, [dentist], 6], [21587.9, [supermarket], 6], [21654.8, [atm], 6], [21676.8, [bbgs], 6], [21680.5, [supermarket], 6], [21701.6, [petrol, station], 6], [21707.5, [atm], 6], [21740.0, [primary, school], 6], [21765.4, [atm], 6], [21765.4, [bbgs], 6], [21765.4, [dentist], 6], [21768.8, [petrol, station], 6], [21770.9, [doctors, surgery], 6], [21774.6, [atm], 6], [21775.7, [post, office], 6], [21781.1, [atm], 6], [21799.2, [doctors, surgery], 6], [21822.2, [atm], 6], [21822.2, [bbgs], 6], [21840.6, [post, office], 6], [21842.0, [atm], 6], [21842.0, [supermarket], 6], [21850.5, [primary, school], 6], [21869.5, [dentist], 6], [21881.4, [dentist], 6], [21929.2, [petrol, station], 6], [21967.9, [secondary, school], 6], [21980.7, [primary, school], 6], [21993.1, [doctors, surgery], 6], [21993.1, [secondary, school], 6], [22050.0, [atm], 6], [22093.4, [atm], 6], [22106.0, [primary, school], 6], [22122.0, [primary, school], 6], [22128.2, [petrol, station], 6], [22199.0, [atm], 6], [22199.0, [supermarket], 6], [22208.5, [post, office], 6], [22210.8, [post, office], 6], [22221.4, [primary, school], 6], [22246.1, [atm], 6], [22246.1, [bbgs], 6], [22275.1, [dentist], 6], [22290.5, [post, office], 6], [22290.9, [primary, school], 6], [22296.0, [atm], 6], [22296.0, [bbgs], 6], [22296.0, [supermarket], 6], [22314.9, [dentist], 6], [22323.7, [post, office], 6], [22324.1, [petrol, station], 6], [22327.3, [atm], 6], [22350.6, [petrol, station], 6], [22410.0, [secondary, school], 6], [22417.2, [petrol, station], 6], [22423.0, [atm], 6], [22427.1, [post, office], 6], [22435.4, [primary, school], 6], [22482.0, [primary, school], 6], [22486.4, [atm], 6], [22486.4, [bbgs], 6], [22486.4, [supermarket], 6], [22487.1, [doctors, surgery], 6], [22507.9, [atm], 6], [22507.9, [bbgs], 6], [22528.8, [dentist], 6], [22536.8, [post, office], 6], [22542.6, [post, office], 6], [22543.0, [primary, school], 6], [22595.1, [dentist], 6], [22601.1, [supermarket], 6], [22628.2, [petrol, station], 6], [22632.3, [atm], 6], [22647.3, [primary, school], 6], [22696.4, [secondary, school], 6], [22736.3, [petrol, station], 6], [22788.3, [doctors, surgery], 6], [22815.7, [doctors, surgery], 6], [22823.1, [dentist], 6], [22829.4, [petrol, station], 6], [22843.2, [atm], 6], [22843.2, [atm], 6], [22893.4, [doctors, surgery], 6], [22905.2, [atm], 6], [22955.2, [primary, school], 6], [22961.7, [petrol, station], 6], [23044.6, [primary, school], 6], [23048.2, [atm], 6], [23170.9, [petrol, station], 6], [23197.1, [atm], 6], [23199.3, [post, office], 6], [23225.2, [atm], 6], [23252.2, [dentist], 6], [23346.4, [post, office], 6], [23371.3, [post, office], 6], [23400.4, [primary, school], 6], [23408.8, [doctors, surgery], 6], [23440.1, [supermarket], 6], [23440.9, [post, office], 6], [23465.5, [bbgs], 6], [23466.5, [primary, school], 6], [23512.6, [primary, school], 6], [23517.3, [secondary, school], 6], [23536.6, [petrol, station], 6], [23548.4, [primary, school], 6], [23570.2, [primary, school], 6], [23591.6, [primary, school], 6], [23601.2, [doctors, surgery], 6], [23651.8, [primary, school], 6], [23749.6, [secondary, school], 6], [23761.7, [primary, school], 6], [23830.7, [post, office], 6],

[23832.2, [doctors, surgery], 6], [23838.4, [atm], 6], [23891.5, [post, office], 6], [23899.9, [secondary, school], 6], [23915.7, [doctors, surgery], 6], [23927.0, [petrol, station], 6], [23978.0, [primary, school], 6], [24031.3, [atm], 6], [24048.7, [atm], 6], [24048.7, [supermarket], 6], [24053.5, [primary, school], 6], [24067.4, [petrol, station], 6], [24088.0, [atm], 6], [24140.4, [doctors, surgery], 6], [24156.5, [primary, school], 6], [24173.4, [post, office], 6], [24181.8, [doctors, surgery], 6], [24231.0, [primary, school], 6], [24232.6, [dentist], 6], [24232.6, [doctors, surgery], 6], [24261.6, [atm], 6], [24261.6, [post, office], 6], [24266.3, [atm], 6], [24270.9, [atm], 6], [24270.9, [supermarket], 6], [24271.1, [bbgs], 6], [24277.6, [primary, school], 6], [24283.8, [post, office], 6], [24312.9, [post, office], 6], [24354.3, [atm], 6], [24368.9, [atm], 6], [24379.4, [atm], 6], [24379.4, [bbgs], 6], [24399.2, [dentist], 6], [24417.1, [dentist], 6], [24443.8, [petrol, station], 6], [24450.9, [doctors, surgery], 6], [24507.4, [petrol, station], 6], [24546.2, [atm], 6], [24546.2, [post, office], 6], [24551.6, [doctors, surgery], 6], [24561.1, [atm], 6], [24609.8, [petrol, station], 6], [24718.7, [primary, school], 6], [24718.7, [secondary, school], 6], [24734.5, [petrol, station], 6], [24770.9, [primary, school], 6], [24839.1, [dentist], 6], [24867.4, [primary, school], 6], [24868.5, [supermarket], 6], [24894.6, [supermarket], 6], [24908.2, [supermarket], 6], [24934.3, [atm], 6], [24934.3, [bbgs], 6], [24936.4, [atm], 6], [24936.4, [bbgs], 6], [24940.4, [atm], 6], [24940.4, [bbgs], 6], [24972.7, [dentist], 6], [24978.2, [bbgs], 6], [24983.8, [doctors, surgery], 6], [24985.1, [post, office], 6], [25115.2, [primary, school], 6], [25211.4, [supermarket], 6], [25290.2, [doctors, surgery], 6], [25306.5, [bbgs], 6], [25329.2, [doctors, surgery], 6], [25363.5, [atm], 6], [25363.5, [bbgs], 6], [25373.3, [atm], 6], [25373.3, [bbgs], 6], [25382.7, [atm], 6], [25382.7, [bbgs], 6], [25385.4, [atm], 6], [25385.4, [bbgs], 6], [25391.2, [atm], 6], [25391.2, [bbgs], 6], [25402.2, [doctors, surgery], 6], [25402.2, [supermarket], 6], [25408.4, [atm], 6], [25408.4, [bbgs], 6], [25408.7, [atm], 6], [25408.7, [bbgs], 6], [25444.1, [atm], 6], [25444.1, [doctors, surgery], 6], [25448.2, [post, office], 6], [25647.1, [atm], 6], [25647.1, [supermarket], 6], [25678.0, [primary, school], 6], [25678.1, [doctors, surgery], 6], [25779.9, [post, office], 6], [25845.9, [dentist], 6], [25929.2, [doctors, surgery], 6], [25957.8, [primary, school], 6], [25960.0, [atm], 6], [26048.1, [atm], 6], [26055.0, [petrol, station], 6], [26095.5, [petrol, station], 6], [26109.5, [petrol, station], 6], [26156.9, [atm], 6], [26174.9, [dentist], 6], [26276.1, [primary, school], 6], [26356.8, [petrol, station], 6], [26434.0, [secondary, school], 6], [26476.6, [primary, school], 6], [26490.4, [dentist], 6], [26529.8, [secondary, school], 6], [26543.8, [doctors, surgery], 6], [26564.9, [doctors, surgery], 6], [26604.0, [primary, school], 6], [26693.5, [supermarket], 6], [26724.1, [atm], 6], [26724.1, [dentist], 6], [26758.7, [atm], 6], [26778.0, [atm], 6], [26781.1, [dentist], 6], [26781.1, [post, office], 6], [26898.0, [atm], 6], [26941.5, [dentist], 6], [27243.5, [atm], 6], [27243.5, [primary, school], 6], [27295.8, [post, office], 6], [27306.8, [dentist], 6], [27314.2, [petrol, station], 6], [27387.6, [atm], 6], [27387.6, [bbgs], 6], [27456.7, [doctors, surgery], 6], [27505.0, [dentist], 6], [27512.5, [dentist], 6], [27519.2, [dentist], 6], [27613.6, [atm], 6], [27634.9, [petrol, station], 6], [27889.0, [atm], 6], [27932.1, [atm], 6], [28112.2, [post, office], 6], [9999999, [atm], 6], [9999999, [bbgs], 6], [9999999, [dentist], 6], [9999999, [doctors, surgery], 6], [9999999, [petrol, station], 6], [9999999, [post, office], 6], [9999999, [primary, school], 6], [9999999, [secondary, school], 6], [9999999, [supermarket], 6]]