

HOWARDIAN HILLS MAPPING PROJECT

A REPORT FOR THE NATIONAL MAPPING PROGRAMME

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I. SUMMARY

The range of low hills known as the Howardian Hills, lies diagonally between the higher ground of the North York Moors on the north, and the Yorkshire Wolds on the south. So far, the archaeology of this area has received rather less attention than that of either of the neighbouring areas, but it has definite similarities with the distinctive, and sometimes quite different, features to be found in both. Aerial reconnaissance has understandably tended to concentrate on an area where crop marks are most productive: the gentle limestone slopes bordering on the southern edge of the Vale of Pickering. Amongst the features of a multi-period landscape recorded here, there is evidence of a prehistoric trackway taking a route which seems to have remained important throughout every period up until the present day.

2. INTRODUCTION

2.1 BACKGROUND TO THE PROJECT

An air photograph transcription of the area of the Howardian Hills was requested by North Yorkshire County Council (NYCC) as a part of their evaluation of the historical environment of the Howardian Hills, Area of Outstanding Natural Beauty (AONB), to assist in the preparation of a Management Plan for the AONB. The Air Photography Unit of the Royal Commission on the Historical Monuments of England (RCHME) undertook to carry out a transcription as a part of their National Mapping Programme, transcribing the whole of the fifteen Ordnance Survey (OS) map sheets which cover the AONB area (Figs 1 and 2).

2.2 OBJECTIVES

The aim of the project was to provide both the National Archaeological Record (NAR) and the local Sites and Monuments Record (SMR) with a comprehensive database of archaeological information, recorded by air photography. It is expected that this information will help to establish the potential of the area and identify areas for further reconnaissance and research.

2.3 SOURCES

The project consulted the main specialist photographic collections: those held within RCHME itself, the National Monuments Record Air Photographs (NMRAP) (a collection which includes both specialist oblique photography and vertical photography taken for non-archaeological purposes), the collection held by Cambridge University Committee for Aerial Photography (CUCAP), and a collection held by NYCC. The county's photographic collection includes photography taken by a number of private flyers, a representative selection of CUCAP photographs, as well as their own photography. A great deal of the private flyers' material is duplicated in the NMRAP collection. The county also holds a computerised record of photography covering their area, which identifies material that they do not hold themselves; this provided information relating to the collections held by CUCAP and the photographs of P V Addyman, held by the York Archaeological Trust. (P V Addyman's photography was kindly lent by the Trust for the duration of the project.) In all, around 4,200 oblique photographs and 2,100 vertical photographs were examined during the project.

2.4 METHODOLOGY

The air survey made use of all available photography of the area held by the National Monuments Record and NYCC to produce photographic transcriptions which took the

form of a graphical record and an accompanying Map Note Sheet for each 1:10,000 map. The work was divided into two blocks of nine and six OS map sheets (Fig 2). Transcription began at the west and worked eastward in order to follow the progress of the field Rapid Identification Survey (RIS). At the end of each block of work, visits were made to the photographic collection at Cambridge in order to examine the remaining prints which were not held as a part of the NYCC collection.

A morphological description of all features depicted on the transcriptions was entered into the MORPH2 computer database. It had not been possible before the start of the air survey, for concordance to take place between the NAR record and data generated in the SMR as a result of the field RIS. Consequently, notes were made against the SMR records, which it is hoped should facilitate concordance at the end of the project.

2.4.1 Mapping methods

The graphical record was sketch plotted onto a film overlay which was pre-printed with a 1:10,000 scale grid. A final inked copy of the transcription was produced for each map sheet.

2.4.2 Conventions

All archaeological features were depicted using the conventions as set out in The National Mapping Programme Specification Document, RCHME (forthcoming). A graphical summary of the conventions is given in Appendix 7.7. The conventions do not differentiate between features which are upstanding and those which are plough-levelled; information of this kind is included in the database.

2.4.3 Database

All features depicted on the graphical record were entered into the MORPH2 database, given site details and a morphological description. Features are numbered in the database according to an hierarchical structure.

2.5 ARCHIVING AND PUBLICATION DETAILS

The original transcriptions, and other material relating to the project will be deposited in the archive at the National Monuments Record Centre, Kemble Drive, Swindon SN2 2GZ. Copies of all the sketch transcriptions with accompanying Map Note Sheets, a copy of the MORPH2 database and any relevant text material will remain initially with the Air Photography Unit, RCHME, Shelley House, Acomb Road, York YO2 4HB. NYCC have been supplied with copies of all the transcriptions and Map Note Sheets. Copies of the

Final Report will be given to NYCC and English Heritage; there are no plans for its publication.

2.6 PROJECT DETAILS

2.6.1 Project team structure

The transcription was undertaken by three members of staff, two Senior Air Photograph Interpreters: Ann Carter and Damian Grady, and one Air Photograph Interpreter: Antonia Kershaw. Day-to-day management of the project was the responsibility of Ann Carter.

2.6.2 Timetable

The air photograph transcription began early in August 1993 and was completed at the end of January 1994. The transcription took a total of forty three man weeks to complete. The estimate for the project timescale (forty nine man weeks) had been made solely on the basis of the quantification of the oblique photography; there had been no quantification of the vertical photography or of the SMR record, following the field RIS. Because it was such a small project, no pilot sheets were undertaken.

2.6.3 Funding

The air photograph transcription project was funded entirely by the RCHME as a part of its National Mapping Programme.

2.7 SCOPE OF THE REPORT

This is a report on the air photograph transcription project only; it is intended to highlight the principal results thus obtained and to give an indication of the kind of information that will be deposited in the NMR as a result.

3. BACKGROUND TO THE ARCHAEOLOGY

3.1 PREVIOUS WORK

Some air photographic transcription work had previously been carried out in the SMR up to 1986-7, but it had been undertaken by a variety of individuals to varying standards. Information from vertical photography had not been incorporated. The SMR transcriptions contained a considerable amount of information unrelated to archaeology, particularly crop marks caused by geological factors.

3.1.1 NAR records

All records held by the National Archaeological Record for the fifteen OS map sheets were consulted.

3.1.2 SMR records

All records held by the Sites and Monuments Record were also consulted; these included the records made as a result of the field RIS which had been incorporated into the SMR record before the transcription project began. The SMR also supplied copies of their own air photograph transcriptions with accompanying photographic references.

3.1.3 Aerial photography

A quantification of all oblique photography of the area had been carried out in the county prior to the start of this project (Hogan 1993). The quantification included material up to 1991, but time had not allowed for the quantification of the vertical photography.

3.1.3.1 Archaeological aerial survey

Aerial reconnaissance has been carried out over a number of years, by several different individuals and organisations. The efforts of private flyers such as A J Crawshaw, A L Pacitto, J Pickering, and D N Riley, are particularly well represented in the collections of both the NMR and NYCC. The earliest photography used by the project was taken in 1930 (Crawford Collection, RCHME), and the most recent in 1992 (RCHME).

3.1.3.2 Non-archaeological aerial survey

The project also made use of the extensive vertical photographic coverage held by NMRAP; this is photography taken for non-archaeological purposes. The project selected photography taken at scales between 1:7,500 and 1:10,000. This photography was mostly

taken on dates between 1946 and 1977, but there was also a small amount of material taken in 1940 and 1945. Photography taken by Meridian Airmaps Ltd, in the period 1972-3, and by the OS, during the same period and also in 1977, provided total coverage of the project area.

3.1.4 Other archaeological work

Over the years, there has been a certain amount of archaeological excavation in the area of the Howardian Hills. In the latter half of the last century, Canon Greenwell investigated a number of barrows on Grimston and Yearsley Moors, and to the south of Fryton Wood and Slingsby Banks Wood (Greenwell 1877). Early this century, a number of Roman kilns around Crambeck were discovered and some excavation undertaken by Corder in 1926-7. More recently, in 1966, G J Wainwright excavated nine barrows near Ampleforth (Wainwright and Longworth 1969), in advance of their destruction. Between 1969 and 1974, excavations by Stead and Pacitto took place on a Roman courtyard villa near Beadlam. In 1993 a field Rapid Identification Survey was carried out on behalf of NYCC, in preparation for the AONB Management Plan.

3.2 LANDSCAPE

3.2.1 Geology

The area is largely composed of heavily faulted and gently folded Jurassic Limestones and Sandstones which form the Howardian Hills. The geological layers of limestone and sandstone give rise to the appearance of contour-like banding in their associated soils, which together with the faulting, can cause confusing crop marks. The project area just touches on the Vales of Pickering and York, in the north east and south west, where drift deposits of glacial and alluvial origin are found.

3.2.2 Geomorphology

The Howardian Hills lie in a north-west to south-easterly direction, and are well defined geographically (Fig 3). They connect the higher ground of the North York Moors to their north, with the Yorkshire Wolds to the south. They rise to a maximum height of 170 m OD, dividing the low-lying areas of the Vale of Pickering, to the north east, from the Vale of York to the south west. The higher ground of the western half of the Howardian Hills is broken up by many stream tributaries, which flow either north and north-eastward towards the Holbeck, the Wath Beck, and into the River Rye, or south and south-eastward towards the River Foss, or Spital Beck, and into the River Derwent. In the eastern half of the Howardian Hills is a long, continuous dip slope which runs from just east of Hovingham and the Wath Beck, as far as Malton; it slopes gently north-eastward towards the Rye valley and the Vale of Pickering. A sharp scarp defines the summit of the

dip slope; below and to the south west, the land is again dissected by stream tributaries, but rarely rises over 100 m OD. At the extreme western end of the low-lying Vale of Pickering, is an area which almost forms an island of higher ground between the Rivers Rye and the Holbeck; this is known as Caulkley's Bank.

3.2.3 Soils

The majority of the area is covered by well-drained, coarse, loamy soils over sandstone: soils of the Rivington 1 series. On the dip slope between Malton and Hovingham, and also at Caulkley's Bank, are soils of the Elmton 2 series: shallow, well-drained, fine loamy soils over limestone. All along the south-western edge of the Howardian Hills, as they approach the Vale of York, are soils of the Dunkeswick association: predominantly fine loamy over clayey soils which are slowly permeable, and susceptible to seasonal waterlogging.

3.2.4 Land use

The area is largely used for arable farming. The north-facing slopes between Malton and Hovingham provide particularly good quality agricultural land suitable for cereal production. A number of villages have grown up along the lower slopes here, while elsewhere the settlement tends to be more dispersed. There are also extensive areas of woodland, both ancient woodland, and commercial, coniferous plantations. There are a number of large Estates in the area, dating from the medieval period, and also the remains of two priories, Newburgh and Kirkham, and an abbey at Byland.

3.3 THE DISTRIBUTION OF ARCHAEOLOGICAL EARTHWORKS AND CROP MARKS

The distribution of crop marks is largely governed by the suitability of the soil for their production, but it may also be a reflection of the intensity of reconnaissance. The best conditions for the production of crop marks in this area are provided by the soils which occur between Malton and Hovingham, and at Caulkley's Bank: soils of the Elmtun 2 series. The soils of Rivington 1, which cover a large part of the project area, also produce good crop marks, and the crop mark distribution pattern very much reflects this fact (Figs 4 with 24). In the west of the project area, and just to the north of Easingwold, is an area of soils of the Newport 1 series: well drained, sandy, and coarse loamy soils, which would also be expected to produce crop marks. At present, however, there has been little evidence recorded in this area. One explanation may be the fact that the western part of the project area (most of maps SE 57 NW, NE, SW and SE) falls within the Military Air Traffic Zone (MATZ) for Linton-on-Ouse Airfield, making opportunities for reconnaissance here rather limited.

Earthworks have mainly been recorded along the south-western side of the project area, and to the east and west. The soils in these areas are less likely to produce crop marks, and are also more likely to remain as pasture (Figs 5 with 24).

3.4 LIMITATIONS OF THE RECORD

There are quite extensive areas of woodland within the project area and here air photography is obviously not a suitable method of recording (Fig 25). As mentioned above, the western end of the project area falls within a MATZ which may well have had a proportionate effect on reconnaissance, and the amount of recoverable information.

4. RESULTS

Records are referenced in the text using the project's MORPH2 number, eg HH.40.3.1. Some NAR references are also given where they exist, eg NAR SE 67 SW 19. Tables of records produced by the project and listed by the following Thesaurus categories (EH, RCHME 1992), can be found in Appendix 7.8.

4.1 THEMATIC REPORT

4.1.1 Agriculture and subsistence

Seven records were made for probable croft boundaries in the project area, all of them as a part of the records for shrunken or deserted villages which are mentioned in 4.1.3.

Ridge and furrow

Within the AONB, records were created for blocks of ridge and furrow which could be identified on photography, and had been recorded by the 1993 field survey as extant. Outside the AONB, ridge and furrow was recorded where it was seen to survive on the 1970s vertical photography, as this was the latest date for which information was available for the whole project area.

At the start of the project, it had been intended that an attempt might be made to monitor the rate of destruction of the ridge and furrow for each map sheet. However, it was soon found that although the vertical coverage during the 1970s was total, and for the 1940s very nearly so, coverage for the intervening periods was patchy. Also, a great deal of the 1940s coverage was not the best quality. Monitoring was still attempted, and was done as a quite separate exercise from the transcription. Using copy maps of the area at 1:25000 scale, fields were marked in colour wherever ridge and furrow was noted in the 1940s, and with a different colour for each succeeding period of photography, if it was seen to survive to that period. For the area within the AONB, those areas of ridge and furrow which the 1993 Field Investigation had recorded as extant, were highlighted. For the area outside the AONB, a note was made when ridge and furrow was seen on any oblique photography of a later date than the latest vertical coverage (ie 1980s to the present). As a result of the poorer quality of the 1940s coverage, it was sometimes found that the ridge and furrow was being noted on photographs of later periods (usually 1970s), in areas where it had not been seen on 1940s photography; this was more noticeable on certain map sheets than others. For this reason, and also because the small quantities identified on some map sheets would make any statistical analysis unreliable, it was decided not to make a statement for individual sheets. However, some general observations about the area as a whole, can be made.

Firstly, it is noticeable that on the whole of the northern dip slope between Malton and the Wath Beck, east of Hovingham (ie, the area of good quality agricultural land mentioned in 3.2.3), only one field of ridge and furrow was noted. It might be assumed, that as this is the best agricultural land in the whole area, it is very likely that there would have been ridge and furrow here, and one or two S-shaped field boundaries to the south of Barton-le-Street would seem to confirm this. It would seem that all ridge and furrow in this area must have been destroyed long before the 1940s. Perhaps this should not be surprising, as other writers have commented on the fact that antiquarians working during the last century, were already noting the damaging effect of ploughing. Caulkley's Bank, to the north of Hovingham, which occurs on the same soils, also showed very little evidence of ridge and furrow.

Secondly, we can attempt to put a very rough figure on the rate of destruction for the whole area, bearing in mind all those drawbacks already mentioned. If those fields which were noted as containing ridge and furrow in the 1940s are accepted as a valid sample, then the survival rate for those areas which occur within the AONB can be followed through the 1970s right up to 1993. Taking an average figure from all fifteen maps, it would seem that around 58 per cent of fields of ridge and furrow which were noted within the AONB in the 1940s had been destroyed by the mid 1970s, and perhaps a further 23 per cent between the mid 1970s and 1993. Only an average of about 19 per cent of the fields noted in the 1940s, now seem to remain. Many of the surviving areas of ridge and furrow are isolated areas; there are few examples of surviving field systems. It seems likely that some of these areas may owe their continued survival to the fact that they occur on more steeply sloping ground. Some of the more extensive areas of ridge and furrow tend to survive close to present-day settlement, and that surrounding the village of Harton at SE 7062 should be mentioned. This village lies outside the AONB boundary and so was not included in the RIS, but it is known from very recent oblique photography that the ridge and furrow still survives. Elsewhere, it is expected that much of the ridge and furrow which the air survey recorded outside the AONB boundary, may no longer be in existence; the source for much of this information is now around twenty years old (Figs 6 and 25).

4.1.2 Defence

A Roman temporary camp was recorded at Diana Hill, Wath (HH.79.1.1). The site lies on fairly level ground at the top of Diana Hill, just over 80 m OD; to the north and west of the site, the ground falls away steeply in the direction of the Wath Beck. The camp was seen as the crop mark of a narrow ditch which outlines an area, almost square in plan, of about 4.9ha. The northwest corner lies in Wath Woods. The camp lies 12 km WNW of the Roman fort at Malton (*Derwentio*), and just south of the course of a probable Roman Road, which is thought to run from Malton, north west in the direction of Hovingham.

The remains of four Second World War searchlight batteries were noted on vertical photographs taken in 1946; at three of the sites, the remains appeared to be at least

partially upstanding (some may have been in the process of being demolished), whilst the fourth was seen as a soil mark. All of the sites took the form of a cluster of three circular enclosures with other associated enclosures and mounds. They were seen at Husthwaite (SE 5226 7526, HH.12.4.1-4), just to the south of Hovingham (SE 6662 7506, HH.53.20.1-6), at Hildenley Heights (SE 7483 7123, HH.67.4.1-7), and at Thornton Hills (SE 6735 6569, HH.75.1.1-5), which lies just west of Thornton-le-Clay.

4.1.3 Domestic

Very few instances of settlement prior to the medieval period were identified. Although there were many examples of enclosures which may be prehistoric or Romano-British (see 4.2.1), with only one exception, there was no evidence of any associated hut circles. However, this situation could change with increased reconnaissance or fieldwork. The exception was to the east of Grimston Howl at SE 622 750, where photography taken in 1970 (CUCAP BEF 79) provided a suggestion of at least four or five possible hut circles within two overlying enclosures. Some sections of the possible hut-circles appear to be partly or wholly defined by pits or stake-holes. One hut circle (HH.39.13.2) is fairly central to one of the enclosures defined by a broad ditch (HH.39.13.1), but the relationship between some of the other circular features (HH.39.13.3 and .4), and this particular enclosure suggests that they may predate it, and possibly belong to the enclosure defined by a very narrow ditch (HH.39.14.1). As there would appear to be more than one phase of occupation here, it is likely that these features could span more than one period.

Only one example of a type of settlement which is commonly found on the Yorkshire Wolds to the south east, a type often described as a 'ladder settlement', was recorded within the area of this survey. This example was recorded at SE 7604 6504, on the east side of the River Derwent, between the river and the scarp of the Wolds. Here seven to eight elongated enclosures adjoined the southern side of a trackway with one trapezium-shaped enclosure to the north.

At SE 7847 6556 a complex of overlapping rectilinear enclosures, suggesting successive phases of development, lay alongside a broad trackway; this was recorded as a probable Roman villa complex. The site has been scheduled (SAM no. North Yorkshire 1(94) as such on the basis of photography taken in July 1970 by the RCHME; this site, Burythorpe, has now been the subject of a higher level survey. Other examples of comparable sites have been recorded from the air, both in Yorkshire and Lincolnshire, and similar sites have been noted nearby, in particular, Wharram Grange which is only 6.5 km to the east.

Seven records were made of moated sites, all but one of which were recorded as earthworks. On the east side of the Rye valley, the moated site at Hall Garth (HH.34.9.1) to the south west of Harome, has been cut by the line of a railway. Two sites lie on the west bank of the Derwent. The first is at Bossall (HH.103.3.1); this example is only partially visible from the air because of tree cover. The second is at the village of Low Hutton: the only example with a dry moat (HH.113.1.1). Some excavation has taken place here

(Thompson 1957) which found that it was an early example, dated to the 12th century. At Foston the moated site (HH.75.9.1) that lay within the manorial enclosure had been recorded on many vertical photographs, but was most clearly seen on the CUCAP photograph, BAA 22, taken in 1969. This site has now been completely levelled; the destruction, in 1984, was recorded by the photography of A J Crawshaw and D N Riley. A moated site at Wath Farm (SE 6755 7489, HH.79.2.1) was only visible on vertical photography taken in 1946; it now seems to be, at least partially, covered by quarry debris. The only crop mark to be interpreted as a moated site (HH.69.1.1) lay alongside the line of a parish boundary at SE 724 7169; this feature was a broad ditched rectangular enclosure with very angular corners, measuring around 40 x 80 m.

A number of records of shrunken and deserted villages were made within the project area. Their distribution concentrated mainly on the north-eastern slopes and in the Derwent valley, to the south east of the project area, although isolated examples occurred in the west and south west. Shrunken village remains were recorded at Westow, where a series of once substantial enclosures with internal divisions and other features, are shown by recent photography to have been almost completely levelled (see also 4.1.1.1). Similarly the remains of the village of Stittenham, a site now occupied by three farms, were clearly recorded in 1969 by CUCAP photograph BAA 20, but recent photography shows the area to have been levelled.

Adjacent to Manor Farm, the deserted village of Thornthorpe was recorded on the north side of a beck which feeds into the Derwent. One cause of desertion was the clearance of village sites to make way for the creation of parkland for country houses. The village of Brandsby is one example, where the entire site of the village was removed further to the west. (The village remains were photographed by CUCAP in 1966, AQH 33.) Other victims of emparking were: Howsham (HH.105.2.1-5), partially destroyed in the latter half of the 18th century, Menethorpe (HH.112.1), destroyed by the first half of the 19th century, and Hinderskelfe, which was destroyed around the end of the 17th century to make way for Castle Howard and its formal gardens. The air survey was not able to record any sign of this last village, but extensive remains of ridge and furrow were recorded to the east of its known site.

4.1.4 Gardens and parks

There were ten instances of features being recorded which can be associated with formal gardens. Of particular note was the soil mark recorded to the south of Castle Howard (HH.68.7.1) which represents the outline of a more extensive formal garden, and is confirmed by an estate map made by Ralph Fowler in 1727. (M McElvaney pers comm.)

At Boscar Grange, SE 506 724, a rectangular double-ditched feature (HH.19.2.1) seen as a soil mark on oblique photography was also noted on vertical photography taken in 1946, where it appeared to be still surviving as an earthwork. In the north east and eastern sections the features appeared to be a series of terraces, whilst the western side was

marked by a hedge-line, as depicted on the 1957 edition of the 1:10,560 map. It is suggested that a build-up of soil at the base of the terraces may account for the appearance, after the site had been levelled, of broad ditch-like features, and that these have led to the previous interpretation of a possible moated feature.

A feature, which was described as an avenue (HH.74.17.1), was recorded at SE 6592 6583; it has been included in a higher level survey (SE 66 NE 26). The avenue is thought to be a formal garden feature, aligned on Sheriff Hutton Hall. It appeared as two very slight, ditched banks which run almost parallel, for a distance of 370 m, before converging at a very slight prospect mound. The feature runs over undulating ground, which may account for the asymmetric convergence of the banks.

Quite a number of features, recorded as ornamental ponds, had a limited distribution in the vicinity of Sproxton to the south of Helmsley, on map sheets SE 68 SW and SE 67 NW. These were fairly distinctive features, often embanked and carefully constructed; they are now considered likely to be dewponds.

Four records were made for features which may be park pales. To the north west of Crayke village, a linear feature 600m long (HH.3.10.1) was noted on OS photography taken in 1973, the greater part of it appearing as the soil mark of a broad bank; the western 200m appeared to be still upstanding and overridden by ridge and furrow. It is suggested that this might be the boundary of the deer park, which is said to have had Crayke Castle at its centre, although its position does not coincide with that suggested by Kaner (Kaner 1993). Also appearing as a soil mark was a feature thought to be the boundary of Henderskelfe Castle deer park (HH.68.3.1). This was depicted on an estate map of 1694, and parts of the boundaries now form parts of the present parish boundaries. At Sheriff Hutton the discontinuous soil mark of a linear feature around 700 m in length (HH.74.19.1), which runs partly along the line of the parish boundary, is also thought to be a former deer park boundary.

4.1.5 Industrial

Five limekilns were recorded, all in association with limestone quarries. To the immediate south west of Cawton village at SE 6398 7672 (HH.52.19.2) and to the east of the village at SE 6485 7650 (HH.52.12.2), they were recorded at the base of the north-facing slope of Cawton Heights, a hillside formed of oolitic limestone. In a similar position, on the north-facing dip slope of another limestone hillside, two limekilns were recorded at SE 6600 7860 and SE 6601 7860 (HH.57.6.2-3), to the south west of Nunnington, on the south side of the River Rye. One other limekiln was recorded at SE 6144 7335 (HH.39.12.2); this was in association with extensive quarrying of north-east facing limestone beds exposed by a tributary of the Holbeck.

Two mill races were recorded, one to the south of the River Rye, at Mill Farm east of Nunnington (HH.61.5.1); it was presumably associated with the post-medieval watermill

known as Nunnington Mill (NAR SE 67 NE 23). On the west side of the Wath Beck, a feature 1,140 m in length was recorded as a mill race (HH;79.4.1). It runs between a dam and the site of Wath Mill, which was depicted on the 1892 edition of the OS 6 in map at SE 6749 7493; no trace of the mill could be seen on photographs because of the vegetation cover.

4.1.6 Maritime

There were no features recorded in this category.

4.1.7 Recreation

The only recorded features in this category were park pales, mentioned in 4.1.4 above.

4.1.8 Religious, ritual and funerary

There were numerous records for barrows and cemeteries of different kinds. Two long barrows were recorded, both as earthworks: the first at Yearsley (East Gilling) SE 6016 7416, lies on the watershed at the highest point of the Howardian Hills; the second, at Westow (SE 7696 6516) on the east side of the Derwent valley, between the river and the western scarp of the Wolds.

Together, 'barrows' and 'round barrows' were the most numerous funerary monuments. This project was not able to record all the known examples, as many occur in woodland. Many of them occur in watershed positions: at SE 5774/5, SE 5874, SE 5974, and SE 6074. Some of these monuments occur in a linear pattern along spurs of rising ground. A line of six (HH.70.1.1-6), lead up to the highest point at the eastern end of the dip slope at SE 742 719, and a line of three (HH.38.9.1-3) occur on a knoll at the western end of the Vale of Pickering, at SE 621 838. Most barrows-builders seem to have had a preference for high ground, although it might be higher only in relative terms. In the low-lying area of the Vale of Pickering, they are recorded on knolls at 50 m OD (HH.33.1.1-3) at the western end of the vale, and between the 30 and 40 m contour on the slopes bordering the southern edge of the vale, ie always in a slightly elevated position in relation to the surrounding area. Only in the Derwent valley, at SE 7442 6462, were barrows recorded on level ground at 15 m OD. These multiple ring ditches have been commented on elsewhere (Dunn 1975), but their validity is not yet considered certain. They have been photographed on only one occasion, September 1967, when their appearance as crop marks could only be explained if they were germination marks in winter cereals.

The crop marks of a small, but previously unknown, barrow cemetery (HH.5.17.1-7) were discovered in a hill-top, watershed-position, just to the south east of Bonnygate Farm (SE 6203 7212). The site has been photographed on only one occasion by RCHME, July 1989, when unfortunately the features are not showing clearly. However, there appears

to be a mixture of barrow types: a double ring ditch (although the rings are not concentric), three single ditched round barrows, and two which appear to be almost square, or at least, markedly sub-circular.

Four square barrow cemeteries containing groups of between four and thirty-eight barrows were recorded; all occurred on the north-eastern side of the project area, either on the north-facing dip slope that runs between Malton and Hovingham, or just to the north, on Caulkley's Bank. The first of these was recorded to the east of Hovingham, at SE 673 753; four square barrows together with at least twenty-two grave pits (some regularly arranged, which may be all that remains of others barrows) were recorded on the lower slopes at the western end of the dip slope, between 35 and 40 m OD. They were in very close proximity to two sub-circular enclosures, 16 m in diameter, which may also prove to be barrows. The second site was recorded at the west end of Caulkley's Bank, on the north facing slope, at 70-75 m OD; a group of around eight barrows was recorded here. The third square barrow cemetery was recorded at SE 6365 7670, to the south west of Cawton, at 75-80 m OD. Here the barrows were recorded to the north side of a trackway with an attached rectangular enclosure; a number of grave pits were seen to both sides of the trackway, but any association with it is uncertain. The fourth and largest cemetery was recorded to the east of Slingsby, again at the foot of the dip slope, at 30 and 35 m OD; at least thirty-eight barrows were recorded here. These were associated with a trackway; almost half of the square barrows actually lay within the side ditches, and four more to the north of the northern ditch. The remainder of the barrows were arranged in a tighter group in the angle between the southern ditch of the trackway and a boundary which joined it at right angles from the south. Many of these barrows appeared to be contiguous, sharing their side ditches.

There were three instances of more isolated examples of features which may be square barrows. The first was a single record at SE 7941 6860 (HH.110.16.1), to the south of Malton. The interpretation of two other records may be less certain. Two features (HH.39.7.1-2) were recorded in the vicinity of the enclosures and hut circles on the east side of Grimston Howl (see 4.1.3). These two enclosures had sides measuring between 8 and 10 m and lay about 130 m apart; one of them had corners which were very sharply angled. The other instance was in the newly discovered barrow cemetery mentioned above, to the south east of Bonnygate Farm, where two of the barrows appeared to be almost square, or at least sub-circular.

In two instances, definite examples of round and square barrows are found in close proximity. On the east side of Hovingham at SE 6775, the square barrows are located 50m to the north of the B1257 road from Hovingham to Malton; against the opposite side of the road is a large conical barrow: NAR SE 67 NE 6. The second example occurs at the square barrow cemetery on the east side of Slingsby (SE 7074); here three round barrows were also recorded, all to the north of the trackway.

There was also one record of an inhumation cemetery; this occurred to the east of Slingsby, where a linear pattern of grave pits, orientated east-west, occurred in proximity to one of the square barrow cemeteries. Although there are instances of grave pits for which the evidence of the covering barrows has probably been destroyed, this particular group of grave pits appeared to be much too closely arranged to have ever been covered by barrows.

4.1.9 Transport

At the western end of the dip slope, two parallel ditches form a curving trackway, aligned NNW to SSE for 700 m (Fig 7). They run up the dip slope, from 45 m OD, to a height of around 70 m OD. At their lower end, a further 270 m section runs eastward from a T-junction (at SE 6814 7486) taking a course roughly in line with the contours. Further to the east, in the area of Slingsby, discontinuous sections of parallel ditches run for 1600 m, also following an east-west course between 30 and 40 m OD. These ditches appear to have been recut and slightly realigned several times; sometimes the boundary has been formed by a line of pits. In spite of this difference in appearance, and the fact that there is a slightly greater distance between the ditches here, they are quite likely to be a continuation of the previous trackway. Their general position and direction is very similar. On the east side of Slingsby one of the square barrow cemeteries (see 4.3.5) occurs in the area of these features.

At the eastern end of the dip slope another considerable length of trackway was recorded (Fig 7). It runs for 2000 m (with a gap of 430 m around Lavender Cottages) from SE 7592 7091 to SE 7665 7264. Its course takes it from near the south-facing scarp, across the hillside in a NNE direction, following the upper edge of a dry valley, towards the foot of the dip slope. At the southern end there were a number of enclosures adjoining it.

Sections of what is believed to be the Roman Road, running SSW from Malton in the direction of Stamford Bridge, were seen on air photographs at SE 7936 7068 (HH.99.2.1), at SE 7905 6923 (HH.110.7.1), and SE 7725 6547 (HH.110.7.2). At right angles to the line of this road, at SE 7963 7012, was a feature (HH.99.4.1) which sometimes appeared as a double-ditched linear feature, and sometimes as the broader crop mark of a road surface. A short section of road (HH.98.6.1) was also seen on vertical photography, running in a north-easterly direction, from the gate of the fort at Malton (*Derventio*).

Sections of what is believed to be a medieval causeway (HH.14.14.1-2), running between Newburgh Priory and the village of Coxwold, were recorded at SE 5432 7617, where its line is continued by the modern road; at SE 5393 7707 a section of around 550 m, curves around the hillside at the east of Coxwold village.

Extensive areas of post-medieval holloways were noted on map sheets SE 57 NE (HH.29.7.1), and SE 67 SW (HH.39.6.1 and HH.39.6.2). At SE 5674, in a densely wooded

area, similar features were also partially visible on vertical photographs, but their presence in this area was only noted on the Map Note Sheet, and no record was made.

There are two railway lines, (NAR SE 68 NE 48, SE 77 SW 26) both now disused, within the project area. These were not actually recorded by the air survey, but their position was marked on the Map Note Sheet, and a note was made of any sections where the line was being completely destroyed by modern alterations.

4.1.10 Water and drainage

The remains of a large fishpond complex associated with Byland Abbey accounted for most of the records of fishponds; two dams and one leat were also recorded as a part of this complex. There is considerable photographic coverage of the Byland Abbey area, and, in particular, there are good stereo runs of photographs taken in November 1979 by RCHME. Also recorded, was the fishpond within the Foston manorial enclosure, which is now destroyed (see 4.1.3).

The remains of two mill races were also recorded (see 4.1.5).

4.1.11 Unassigned, Civil, Commemorative and Commercial

Dykes

A number of features were recorded with the interpretation 'dyke', a term traditionally used to describe systems of banks and ditches, which are found in single, double, and multiple combinations. These features are familiar on both the North York Moors and the Yorkshire Wolds. In their simplest form, they appear to be some form of territorial division, which makes use of natural features of the terrain. The short cross-ridge dykes, which cut off narrow spurs of ground or connect valley heads, are particularly common in the centre of the North York Moors, on the south side of Eskdale. Longer earthworks are found along the watersheds or along the edge of scarps; the Cleave Dyke System on the Hambleton Hills is one example.

A 'double dyke' (HH.29.10.1) formed by two ditches and one bank, at the southern end of the Hambleton Hills, was recorded running from Sproxton Moor southwards towards the steep-sided valley known as Smith Hill Howl, cutting off the end of a spur of ground. A length of some 950 m was recorded from 1946 vertical photography, but a great deal of the southern section has now been levelled.

On Oulston Moor at SE 5638 7485, a 250 m length of cross dyke (HH.1.1.1) was recorded. This feature, which crosses the central watershed, now lies in a densely wooded plantation, and is cut in two by the modern road. It is formed by three well defined banks and two ditches, and is sited downslope, to the east of the highest ground.

On Grimston Moor at SE 6185 7436, a soil mark of what may also be a cross dyke (HH.39.II.1), was noted on vertical photography taken in 1946 and 1957. The feature appears to be formed by one ditch and two banks. It takes a slightly sinuous course, NNW to SSE for 300 m, a course which would also have crossed the central watershed, connecting the head waters of a stream which flows north into Grimston Howl and the Holbeck, with another which flows south east to join the Marrs Beck (a tributary of the Holbeck). The feature appears to be cut in one place by a number of other features, which were interpreted as post-medieval holloways, and which run for some considerable distance in an east-west direction (see 4.1.9). To the west of this possible dyke, within what is now a large coniferous plantation, short sections of what were believed to be a continuation of the holloways could be seen on 1946 vertical photography, when the tree cover was much sparser. After a field visit to the area, it is thought probable that at SE 612 745, holloways may actually be following the line of a dyke which runs in an east-west direction. The photographs show the southernmost bank as slightly broader and more substantial; however, no record of a dyke was made by the air survey at this point.

A scarp-edge dyke runs along the entire length of the top of the scarp in Slingsby Bank Woods and Coneysthorpe Bank Woods (NAR SE 67 SE 3), and was recognised in places on the 1946 vertical photography. Very often it was the ditch that was the most visible, but in some places two banks or two ditches were recorded. At its eastern end, two short stretches of multiple banks and ditches, which appear to be contemporary or possibly later, run at right angles from it for 25 and 70 m down the dip slope.

Below the scarp, on the dip slope itself, some of the crop marks of a D shaped arrangement of linear features were also given the interpretation 'dyke' (Fig 7). The function of these features is probably quite different; their appearance suggests adaptation and reuse, perhaps over considerable periods. They may have served different functions at different times. In this they may have more in common with the complex features on the Yorkshire Wolds than with those on the Moors. The straighter element of the D-shaped feature recorded here, runs for around 1400 m at the foot of the dip slope, roughly parallel with the 40 m contour. The curved element runs up the dip slope, almost as far as the 95 m contour, and back down again (cf 4.1.9 description of trackways on dip slope). The whole feature is composed of between two and four linear elements. Relationships between some of the linears, and features adjoining them, suggest that not all are likely to be contemporary; rather it seems, the multiple elements must represent a realignment and adaptation of features over a period of time. At SE 7275 7376 there is a funnel entrance which suggests that some elements of these features might be connected with the herding of stock. A considerable quantity of photography has been taken, by all flyers, of the features in this area.

To the north east of the village of Sheriff Hutton, the crop mark of a triple dyke (HH.74.I.1) was recorded in a rather different situation, on the flat and low-lying ground of Sheriff Hutton Ings, at only 30-35 m OD. The dyke takes a very sinuous path that is roughly parallel with the line of higher ground 400 m to the east.

At SE 6173 7224 the crop marks of a triple ditch (HH.5.13.2) were photographed for the first time in 1991, by RCHME (SE 6172/6-7). There is a rectangular enclosure beside them, to the west. The triple ditches take a curving south-west to north-east route for 190 m between steep-sided valleys to both the south west and the north east; the ditches are sited downslope and to the west of the highest ground (the site of the new barrow cemetery, see 4.1.8). More photography is needed to help in the understanding of the real nature of this feature.

Pit Alignments

There were four records for pit alignments: two of these were for features which were wholly composed of pits; a short section running directly north to south at the top of Caulkley's Bank (HH 58.9.1), and a discontinuous feature to the west of Malton (HH.70.12.1-2). Otherwise there were a number of boundaries which had a pit defined element to them, and they will be mentioned in section 4.2.3.

Enclosures

There were numerous different types of enclosures recorded from several different periods. Particularly worthy of a mention here, are the number of four-sided prehistoric enclosures which were recognised to have very similar characteristics (see 4.2.1); these appear to be concentrated on higher ground in the central part of the Howardian Hills. However on Caulkley's Bank there was a noticeable concentration of very much more angular forms of enclosure (see 4.2.1). Also in the central part of the Howardian Hills, a very large, double-ditched curvilinear enclosure (HH.40.3.1, NAR SE 67 SW 19), was recorded at SE 6208 7304 (see 4.2.1). This site has been scheduled (SAM no. North Yorkshire 1241) on the basis of photography taken by CUCAP in 1953, and 1974 (MZ 78-9, BQM 61-3).

Substantial medieval earthworks, adjoining surviving villages, which probably form large rectangular enclosures were recorded on three occasions. All were in the south east of the project area: two on the east side of the River Derwent, and one to the west. They were at Firby, SE 7434 6632, where lengths of substantial banks (HH.92.5.1), over 100 m long were noted on vertical photographs. It is suspected that these features may since have been levelled. At the village of Westow, SE 7565, two sides of a large enclosure (HH.92.32.3-4) adjoin its south-west corner; this feature was further subdivided, and contained at least three buildings, one of which appeared substantially built. The site was photographed by CUCAP in January 1973 (BLN 83-4). NMR photography taken in 1992, showed the western half of the site to have been levelled, while more recent field visits have found that the majority of the site is now being ploughed. The third site was at Harton, at SE 7064 6211; here a square and substantial enclosure (HH.104.4.1) lies on the north side of the village. The modern road which runs NE-SW through the village, skirts the enclosure on its north and west sides. This site was photographed in 1992 and still

survives (NMR 12330/16-20). None of these three sites seem to have been recorded previously; only the site at Firby lies within the AONB.

4.2 MORPHOLOGICAL REPORT

There were 1,612 records entered into the MORPH2 database during the project. The majority of records (852) were entered in the linear feature table. There were 365 records in the enclosure table, 202 in the linear system table, and 193 in the macula table. Figure 8 shows the proportion of records entered into each of the MORPH2 tables and the proportion of records within each which were flagged as possibly belonging to one of the other tables. Figure 9 shows the proportion of records created by this project which relate to existing records, whether in the NAR or SMR, and those which are entirely new. The results of the field RIS are seen in the high proportion of SMR records.

4.2.1 Enclosures

Features recorded in the enclosure table are described as being either curvilinear or rectilinear in outline. Funerary monuments accounted for 23% of all enclosure records, whether curvilinear or rectilinear.

Curvilinear

Of the 365 enclosure records, 28% (105 records) were described as 'curvilinear'; of these 'curvilinear' enclosures, 32% (34 records) were interpreted as either barrows or round barrows. (Funerary monuments were recorded either in the 'enclosure' table or the 'macula' table, depending on whether the ditch or the mound was the most visible feature (see also 4.2.4).) All the barrows and round barrows, recorded as enclosures, were seen as crop or soil marks; 64% (22 records) had diameters of less than 15 m, the smallest being 6 m, and 35% (12 records) had diameters of 15 m or more, the largest being 21 m.

Around 22% (23 records) of curvilinear enclosures were for features related to settlement or field systems. No particular pattern was seen to their size, shape or distribution. All but one of these enclosures were described as being 'asymmetrical'. The only one described as 'regular' in shape, HH.73.13.1 was situated at the foot of the dip slope at SE 6864 7484. It was 110 m in diameter and had an entrance to the west. All the seven 'asymmetric' enclosures were quite individual. HH.52.3.2, which is situated on fairly level ground at 100 m OD (SE 6272 7657), measured 50 x 30 m and had a narrow entrance to the east; against this entrance were two straight, parallel linears, possibly forming a funnel-type entrance (HH.52.3.3), although the straightness of this feature is surprising in comparison with the nature of the enclosure itself. Another notable example was the large double-ditched enclosure, HH.40.3.1 (see also 4.1.11), situated at SE 6208 7304, on the end of a southeast facing spur at 125-130 m OD (Fig 10). This enclosure is

around 170 × 140 m in size; at its eastern end it contains two similar and roughly rectangular enclosures. It appears to be approached by trackways from the east, although no entrance is visible. A D-shaped enclosure, HH.41.2.1 at SE 6279 7387, measured 80 × 45 m and had an entrance to the south east (Fig 10); this last enclosure had been an earthwork until fairly recently, being ploughed over for the first time between 1979 and 1984. A rather strange feature, encircled by three ditches, HH.38.3.1, was recorded at the foot of one of the dales, to the extreme north of the project area, at SE 6246 8437.

Around 28% (29 records) of curvilinear enclosures were interpreted as either 'ponds' or 'ornamental ponds' (as explained in 4.1.4, the latter are now thought to be dewponds). All the ponds had diameters between 8 and 10 m, and the 'ornamental ponds' between 8 and 22 m; apart from two of the ponds, all were seen as earthworks. Sixteen records (15% of curvilinear enclosures) related to features belonging to the searchlight batteries (see 4.1.2).

Rectilinear

Of all the enclosure records, 71% (260 records) were described as 'rectilinear' in outline. Of these 'rectilinear' enclosures, 23% (61 records) were interpreted as square barrows. These features varied in size from 4 × 4 m to 10 × 10 m, with one being recorded as rectangular with dimensions of 10 × 9 m. Ten of the sixty-one square barrow records noted that the corners were curved; the remainder had angled corners. All were recorded as crop marks, and were mostly found on the well-cultivated slopes facing the south and west sides of the Vale of Pickering (see 4.1.8); they were found at between 30-40 m OD, and 70-80 m OD.

Four-sided prehistoric enclosures

A number of prehistoric enclosures were recorded which were recognised to have very similar characteristics (Figs 11 and 12). These were recorded in the central part of the Howardian Hills, with a concentration to either side of the stream which feeds into the Marrs Beck. They were four-sided enclosures; their measurements were fairly similar in length and breadth, and fell within the range 40 × 40 m to 60 × 60 m. Some, if not all of their sides were bowed, and many of the corners were curved, often with a combination of curved and angled corners. About half of the examples had a linear feature attached. There appeared to be a preference for a location on south-east facing hillsides or hill-tops. Similar examples, photographed in August 1991 by RCHME (SE 6273/48 and 42) lie on adjacent spurs of high ground at: Toft Hill, SE 6214 7351 (HH.40.2.1) and Leys Hill, SE 6281 7348 (HH.41.5.1) (Fig 10). One of this group of prehistoric enclosures (HH.43.7.1) (SE 6383 7219), an enclosure with dimensions of 40 × 40 m recorded on a south-east facing slope, had an entrance in its south-west side; from this side of the enclosure two parallel ditches ran along the contours for 120 m, forming a broad funnel-type entrance (HH.43.7.2).

On the southernmost edge of the Hambleton Hills, ie the extreme northern edge of the project area, two very similar enclosures of this type were recorded: one as a crop mark at SE 5360 7958 (HH.9.2.1), and the other as an earthwork, at SE 5812 7985 (HH.29.2.1); both had entrances to the east. This last enclosure is known as Studfold Ring (NAR SE 57 NE 6). The sharp profile of its bank and ditch suggest a medieval date, but it is considered that this may be a late restoration of a feature which may have had a prehistoric origin; however at present there is no evidence to support this.

Other four-sided enclosures

On the north-east side of the project area, at Caulkley's Bank, very much more angular, straight-sided enclosures were recorded. A line of six such enclosures occur at the top of the south-facing scarp, at the eastern end of the hillside (HH.58.7.1-3 and HH.58.7.5-7). Two enclosures on the hillside were square and of similar size: HH.57.13.1 and HH.58.7.1. There were a number of other possible angular enclosures recorded on Caulkley's Bank, but they were only seen incompletely.

Pairs of very similar enclosures occurring in close proximity were noted on two occasions. Two small and very angular enclosures, each with an attached linear (HH.86.1.1. and HH.86.1.3), were recorded on a small south-facing spur near the upper reaches of the Wath Beck, while to the south west of Hovingham, two other enclosures (one incomplete), HH.53.19.1 and HH.53.19.2, were associated with a linear system, lying in the angles formed by its perpendicular elements. The enclosures lay to either side of a slight trough in the relief, at 90 m OD.

Three enclosures were recorded which had very straight sides, and regularly curved corners; consequently they were attributed to the Roman period. Firstly, a feature situated at SE 7137 6692 (HH.90.4.1), which has been photographed on only one occasion, and in poor conditions (SE 7166/3-5). Secondly, a feature situated in Sheriff Hutton park, at SE 6577 6598 (HH.74.16.1), which has a double ditch on three sides; this has been the subject of a higher level survey (NAR SE 66 NE 25). Thirdly, a crop mark feature at SE 6099 8462 (HH.30.2.1); only two corners of this feature appear curved, one is not visible.

4.2.2 Linear systems

Records for blocks of ridge and furrow accounted for 80% (161 records) of all records of linear systems. Of the remaining 41 records, 65% were related to features of the medieval period, all but three of which were recorded as earthworks. Five records were for crofts associated with the deserted medieval villages of Oulston, Fryton, East Ness, and High Hutton, and another possible site at Nunnington; they varied in size from 40-100 m in length and 20-40 m in breadth. Nine other records were for enclosure systems which were also associated with shrunken or deserted villages at High Stittenham, Westow, Thomthorpe (Manor Farm), Menethorpe, and Crambe; their dimensions varied from 30-

100 m in length and from 12-50 m in breadth. Ditched field systems with no obvious associations were also recorded. One in particular, (HH.74.6.1) was situated at 40 m OD, 700 m to the north of the village of Sheriff Hutton, on Sheriff Hutton Ings. This system of rectilinear enclosures with an average length of 175 m, also incorporated smaller enclosures of 50-60 m, and was given a medieval date. The system appeared to have been just slighted by ridge and furrow. Two records (HH.70.13.1-2) related to a rectilinear system of enclosures seen as crop marks to the south west of Malton, at SE 772 711; these were given a post-medieval date.

There were eight records for prehistoric linear systems. Three of these records were for prehistoric enclosure systems, recorded in the vicinity of the extensive linear features, described in 4.1.11, at the foot of the dip slope. Two of these enclosure systems were described as 'accreted' (HH.72.14.2 and 72.15.1); the dimensions of the individual enclosures varied between 50-60 m by 30-50 m. One extensive system of probable prehistoric field boundaries were recorded on Warten House Hill (HH.43.1.1), centred at SE 6300 7265; there was considerable variation in size amongst the enclosures, the average dimensions were given as 230 x 70 m.

There were numerous other probable linear systems recorded, but because of their more fragmentary nature they were recorded in the category 'linear feature' and flagged as probably belonging to a linear system (or to both a linear system and enclosure, see 4.2.3 below) (Fig 8).

4.2.3 Linear features

This morphological description was used for just over a half of all records created during the project; it described a far greater number of different types of feature than any other category. It was used to describe features related to agriculture and subsistence (eg field boundaries, lynchets, ridge and furrow), transport (eg holloway, road, track), water and drainage (eg dam, drain, leat, mill race) and the Unassigned Thesaurus category (eg bank, boundary, dyke, enclosure, pit alignment, unknown).

Seventeen of the recorded linear features had a pit-defined element. All of these were thought to be prehistoric in date. For nine of these records the pits were just one element in combination with ditches; the pits either ran adjacent and parallel with the ditch, or were interwoven with it, one element apparently superseding the other. The remaining eight records were composed entirely of pits. One of these records (HH.73.10.1) described three linear features, all composed of oblong pits; another (HH.70.15.1) was a very short feature, formed by two parallel rows of pits. Two of the pit-defined linear features occurred in the extreme south east of the area, between the River Derwent and the Yorkshire Wolds. Two more occurred on Caulkley's Bank, and all the remainder were recorded along the north-facing dip slope. The apparent distribution of this type of feature may have been influenced to some extent by the suitability of this area for the production of crop marks (see 3.3).

Of the linear feature records, 71 % (608 records) were 'flagged' to show that the feature described might form a part of an enclosure (80 records), or a linear system (463 records), or both (65 records) (Fig 8). This was particularly the case in the central area of the Howardian Hills, to the north and south of the Marrs Beck, where probable fragments of field systems cover quite an extensive area and where there were numerous records of incomplete enclosures. Most of these fragmentary field systems are thought likely to be prehistoric.

4.2.4 Maculae

One third of all macula records (65 records) related to ritual or funerary monuments: long barrows, barrows, round barrows, and graves (see also 4.2.1). Two thirds of the records for barrows and round barrows (39 records) were described as being of medium size (4-15 m), and one third (20 records) as being of large size (15-50 m). Only one barrow was described as being small (1-4 m). Of the records for barrows, round barrows, and long barrows, 42% (26 records) were recorded as earthworks, all but two of the remainder were crop or soil marks, the remaining two were a combination of earthwork and crop/soil marks.

There were four records for graves which occurred in groups of between seven and twenty-four; all were in the vicinity of square barrows. Only one of these groups was described as being arranged in any particular pattern: HH.73.26.1. This is a group of twenty-two graves at SE 7032 7482 which, as already mentioned in 4.1.8, occurred just north of a square barrow cemetery on the east side of Slingsby. These graves were arranged in a linear pattern and oriented east-west (NAR SE 77 SW 27). Part of another group of twenty-two graves, which were recorded adjacent to the square barrow group, to the east of Hovingham (HH.53.10.1), appeared regularly arranged. A further 9% (18 records) were for features interpreted as pits and half of these are also associated with funerary monuments: seven records were for features which were central to barrows or round barrows, and another two records for groups of eleven and twelve pits which occurred on the north side of the square barrow cemetery at Slingsby, mentioned above.

Almost a fifth of macula records (37 records) were for industrial features: limestone quarries, sandstone quarries, quarries of an unspecified nature, lime kilns and extraction pits.

4.2.5 Industrial complexes

No records were created in this category.

4.2.6 Possible new classes

No new classes of monument were identified by the project.

4.3 PERIOD SUMMARIES

Figures 13 to 23 show the distribution pattern of records for each period. These distributions can to some extent reflect, map sheet by map sheet, the influence of the work of individual interpreters; some interpreters prefer to give the date of greatest probability, eg Bronze Age for barrows, as opposed to Unknown Prehistoric, or Late Medieval for ridge and furrow, as opposed to Unknown Medieval.

4.3.1 Unknown (Fig 13)

There are always a number of features which are impossible to date or to identify with a likely function. This project had a number of such records, but none which warrant a particular mention.

4.3.2 Pre-Neolithic

There were no features recorded by the transcription for this period.

4.3.3 Neolithic (Fig 14)

The air survey was not able to add any further to our knowledge of the monuments of this period. Three previously known monuments were recorded: two long barrows and one round barrow. Both long barrows were investigated during the last century by Greenwell. The first, at Yearsley (East Gilling), is prominently situated at the highest point in the project area: 170 m OD, and is orientated SSE-NNW. The second long barrow, at Westow, lies on the east side of the Derwent valley, at 50 m OD, between the western scarp of the Yorkshire Wolds and the Howardian Hills; it is orientated SE-NW. Over 3000 m to the north east of this position, and also on the lower slopes between the Yorkshire Wolds and the River Derwent, is a large kerbed round barrow of the Late Neolithic, known as Whitegrounds Barrow. The barrow was excavated by T C M Brewster in 1968 and found to overlie an oval Neolithic cairn which contained an entrance grave, aligned SE-NW. Aerial photography has recorded the excavation in progress.

4.3.4 Bronze Age (Fig 15)

Only funerary monuments were identified by the air survey as being of probable or possible Bronze Age date. Much of the present knowledge of these monuments dates from the 19th century when a number were investigated by Greenwell. Although more

recent excavations have been undertaken by G J Wainwright in 1966 on a group of barrows at the southeastern tip of the Hambleton Hills (HH.29.3.1-8), all had previously been thoroughly robbed.

Barrows were recorded in different topographical situations (see 4.1.8). There may be an association between the barrows and the dyke systems, to which this survey gave an Unknown Prehistoric date, but which are sometimes thought to originate in the late Bronze Age (Fig 16). This dating, however, relies largely on their relationship with other monuments, as there is little direct evidence from excavation (Spratt 1993).

A scattering of barrows occupies the central watershed, at over 140 m OD, the highest section of the Howardian Hills. The barrows here include Greenwell barrows CXXXII-CXXXVII. Most of the barrows on the central watershed are contained in an area lying between two cross-dykes which the survey recorded. The dyke at SE 5638 7485 (HH.1.1.1) crosses the watershed to the west of all but two, known barrows, while at SE 6185 7436 (HH.39.1.1), a plough-levelled dyke discovered by the air survey (see 4.1.1.1), crosses the watershed to the east of the barrows. The south-eastern tip of the Hambleton Hills is divided from the rest of the hill range by a cross ridge dyke (HH.29.10.1). Here, barrows are known to either side of the dyke; those to the west lie beyond the project area.

In the eastern half of the Howardian Hills, another group of barrows occurs in a very different situation; these are Greenwell barrows CXXXVIII-CXLIV (and probably also CXLV-CL). In recording them, Greenwell had remarked on their situation, because he had often noted that barrows frequently occupy the highest ground. These barrows occur on the lower slopes, between 55 and 60 m OD, beneath and to the south west of the scarp, some 4,500 m long, which defines the edge of the dip slope. A scarp-edge dyke (NAR SE 67 SE 3; see 4.1.1.1) runs along the entire length of the southern face of this scarp. On the North York Moors, it has been shown that barrows appear to have been used to align the dykes which run along the watersheds and scarps, and are sometimes incorporated into them (Spratt 1993). This has not been the case here, as unusually, there seems to have been only one barrow recorded along the top edge of this scarp. This might suggest either that the dyke was already occupying this position when the barrows were built, or that the focus of the barrow builders was very definitely towards the south west.

Although no settlement evidence was recorded for this period, it may be that some of the enclosures dated Unknown Prehistoric (see 4.3.7) will eventually be recognised as belonging to this period.

4.3.5 Iron Age (Fig 17)

The only features confidently assigned to the Iron Age period were the very distinctive square barrows which are found most extensively on the Yorkshire Wolds to the south east, where they are associated with the Arras Culture. Large numbers of these features

have been excavated in recent years at a number of different locations in East Yorkshire (Dent 1983, Stead 1991) where they have been shown to date mostly from the third to the first centuries BC.

All the square barrows were recorded as crop marks; in four instances they occurred in groups of four or more, and were sometimes associated with grave pits, which may be all that remains of other barrows (see 4.1.8). As has been noted on the Yorkshire Wolds (Stead 1991), the square barrows are sometimes found close to trackways or boundaries (although the association is not always certain), and sometimes they are obviously arranged in line with them. It might appear from the records of this survey that the distribution of square barrows is tending to follow the fringes of the Vale of Pickering at between 30 and 80 m OD. However, it should be noted that the areas where they have been recorded are also those which are most favourable to the production of crop marks (see 3.3). Also, there is an instance of square barrows being recorded as earthworks (although not seen by the air survey) and at a higher altitude. At least twelve barrows have been recorded (SAM North Yorkshire 884a) at over 190 m OD in the woodland at Dropping Gill Plantation (SE 588 797), although field observation in 1985 found at least six were too obscured by vegetation to define their shape or give more than one dimension.

Although there was no settlement evidence recorded for this period, it is very likely that some of the enclosures dated Unknown Prehistoric (see 4.3.7) may, with further investigation, be recognised as belonging to this period.

4.3.6 Roman (Fig 18)

The evidence for the Roman period is not very substantial; in addition to the known sites, ie the fort at Malton, and the villa at Beadlam, air survey has previously managed to add some sections of Roman road leading to the fort, and the temporary camp at Diana Hill, Wath. It has also succeeded in identifying a probable villa complex at SE 7847 6556 (Burythorpe), between the River Derwent and the Wolds. This complex, which adjoins a broad trackway, appears to have been developed and enlarged over a period of time, probably originating as a small farmstead, although no actual buildings have been identified. It can be compared with other sites discovered by air photography, particularly that at Wharram Grange, only 6.5 km to the east.

Chance finds made during the last century have suggested that there may have been other villa buildings in the Howardian Hills area but the air survey has not succeeded in finding any more evidence of these. Nor has it been able to add anything to the knowledge of the area surrounding the pottery production centre at Crambeck, on the River Derwent.

4.3.7 Unknown Prehistoric (Fig 19)

A number of enclosures of a particular type (see 4.2.1) were identified by the air survey. They appear to be largely confined to the western, more upland half of the Howardian Hills, and to that small part of the Hambleton Hills which falls within the project area. They occur on hill-tops or hill slopes, favouring an aspect between the east and the south. The similarity between one of these enclosures, Studfold Ring earthwork, situated at the southern end of the Hambleton Hills and enclosures on the North York Moors has already been noted (Spratt 1993). One of the sites with which it has been compared, Great Ayton Moor, has been excavated and given an Iron Age date (Tinkler and Spratt 1978); morphologically, it is extremely similar. The excavators consider that the Great Ayton Moor enclosure is likely to be a stock enclosure, a suggestion that has also been made for Studfold Ring.

Extensive trackways and boundaries formed by both pit alignments and ditches which were recorded in the eastern half of the Howardian Hills are difficult to date without evidence from excavation. From their appearance though, they would seem likely to have been reused and adapted several times, and so probably continued in use over very long periods. Similar features, in a very similar topographical situation, have been excavated 20 km to the east, on the southern edge of the Vale of Pickering at Heslerton, North Yorkshire (Powlesland 1986). Here, there is a major boundary which in its earliest phase was defined by regularly and closely spaced pits, which was re-cut on more than one occasion in the form of a ditch. It has been shown to originate in the Late Bronze Age/Early Iron Age period and to continue in use until the Early Medieval period. Three trackways have also been discovered at Heslerton; one which dates from the Iron Age period runs east-west along the 30 m contour.

4.3.8 Early Medieval

The difficulty of identifying from air photographs, features typical of this period, accounts for the total lack of any records. It is unlikely that this is a genuine absence. It is possible that the inhumation cemetery (HH.73.26.1) where the graves are regularly arranged east-west in a linear pattern, might belong to this period, although this survey recorded them as Unknown Prehistoric. There are many known instances of earlier cemeteries being reused for Anglo-Saxon burials; this has occurred in neighbouring areas, both on the Yorkshire Wolds (Stead 1991), and on the southern borders of the Vale of Pickering (Powlesland 1986). The fact that the graves here at Slingsby appear never to have had covering barrows, suggests a separate burial practice within the cemetery, and although flat graves are known in earlier periods, their regular arrangement in line with a boundary, suggests that they are more likely to be of a later date.

4.3.9 Medieval (Fig 20)

Medieval settlement took place over much of the area, concentrated particularly on the lower slopes of the Howardian Hills. The area saw the establishment of several monastic

houses: an abbey at Byland, and priories at Kirkham, Newburgh and Malton, which played a significant part in the development of the area. Most monastic houses, including Rievaulx Abbey further to the north, held lands in the villages, concentrating particularly on the slopes surrounding the west (around Caulkley's Bank) and south sides of the Vale of Pickering. Collection points for the disposal of wool were set up at both ends of the Howardian Hills, at Malton Priory and at Thorpe Grange (Byland Abbey), in the Gilling to Coxwold gap. These points were ideally situated for access to the port of Hull, and collected from monastic holdings over a wide area: the Wolds, the North York Moors and the Vale of Pickering (Waites 1980).

We assume that much of the present day settlement occupies the same locations as the medieval period as the evidence for desertion is not very considerable when compared with some parts of the country. Such evidence as there is, is mainly concentrated on the north east, east and south-west facing slopes of the Howardian Hills, and a small area between Caulkley's Bank and the southern tip of the Hambleton Hills. The reasons for desertion or depopulation are not fully understood, and exact dates of desertion are not known, but it has been suggested (Beresford 1954b) that areas that were supported by a mixed economy might be virtually immune from depopulation during this period. The project area has access not only to good pasture land, but also to best-quality areas for cereal-growing, and extensive areas of woodland; it is perhaps unlikely to have attracted the attention of those who wished to turn large areas over to any single economy, which was one of the major factors affecting depopulation.

The project recorded a particular form of enclosure which is typical of the period: the moated site. Two of the moated sites within the area, Foston and Scackleton (not recorded by the air survey), were the property of St Mary's Abbey, York. The majority of moated sites are believed to date from the middle of the 13th to the first quarter of the 14th century (Le Patourel 1971), but one of the sites at the village of Low Hutton, situated 5 km to the south west of Malton, on the west bank of the Derwent, has been dated to the 12th century. Limited excavations were carried out here in 1953-4 (Thompson with Smith 1957), which also discovered evidence of earlier, Roman activity on the site.

4.3.10 Post Medieval (Fig 21)

Some of the village desertions certainly occurred as a result of emparking in the 18th and 19th centuries. Although the creation of the park may not have been the sole reason for their destruction in every case; sometimes it may have been only the final act, following a period of gradual decline as a result of other factors. The village of Menethorpe was one casualty, it was finally cleared some time after 1851. Sometimes, as in the case of Brandsby, a village was entirely resettled as a result of emparkment (Beresford 1954a). However, Hinderskelfe village seems to have been entirely destroyed to make way for the building of Castle Howard and its grounds at the end of the 17th century; the evidence for some of its fields are now the only visible remains (Beresford 1954a and Barley 1978).

Also at Castle Howard, the project was able to confirm documentary evidence for the former existence of more extensive gardens (see 4.1.4). Elsewhere, on a smaller scale, there were a number of records for ornamental or garden features belonging to this period.

Little evidence of industrial activity was recorded by the air survey. The project did not attempt to record extraction of more marginal significance unless there were associated features, but a few limekilns and some of the larger quarries were recorded. The air survey was not able to record any evidence for rabbit warrening although it seems to have taken place within the area. Around Grimston Moor a number of farms have names which suggest the existence of a former rabbit warrening industry. In his account of the prehistoric barrows in this area, Greenwell included a description of four mounds, which sounds very much like a description of pillow mounds, and which he recognised himself as being 'not apparently sepulchral' (Greenwell 1877, pp 343-4).

During the 19th century, two railway lines were constructed (NAR SE 68 NE 48 and SE 77 SW 26). Their courses follow the lower slopes of the hills, bordering the edges of the Vale of Pickering, and taking advantage of natural gaps in the relief at Coxwold, and the west end of Caulkley's Bank. Both lines are now disused. They were not recorded by the air survey, but it was noted that in some places, the evidence for their course is already becoming obliterated.

4.3.11 20th century (Fig 22)

Four Second World War searchlight batteries and associated features, described in 4.1.2, were recorded by the air survey.

4.3.12 Unknown Medieval (Fig 23)

It is often difficult to assign a more precise date than Unknown Medieval, purely on the basis of air photographic evidence, except to certain distinctive types of feature, eg moated sites. As a result, a great many features particularly relating to agriculture and subsistence, fall within the Unknown Medieval category.

Substantial earthwork boundaries which probably form part of enclosures were found in three instances beside village remains (4.1.11); there seems to have been no previous record of these features. One suggestion is that they may be manorial enclosures, but this would need investigation.

4.3.13 Multi-period sites and landscapes

The whole length of the dip slope, bordering the south side of the Vale of Pickering, is likely to present a continuous multi-period landscape. Features recorded here include:

round barrows (some double-ditched), square barrows, trackways, multi-phase boundaries, and possible evidence for settlement in the form of enclosures; these features are likely to be representative of all periods from at least the Bronze Age onwards (Fig 7).

5. CONCLUSIONS

The results of the air survey show that the archaeology of the Howardian Hills makes it, potentially, a very interesting area. It shares something in common with the archaeology of both the neighbouring upland areas, the North York Moors and the Yorkshire Wolds, with some distinctive elements being found more commonly in one or the other.

Comparable to others found on the North York Moors, were the four-sided, prehistoric enclosures mentioned in 4.1.11 and 4.2.1. In the project area they were recorded almost exclusively in the western half of the Howardian Hills, on the higher ground. Only two possible candidates, both incomplete, were recorded any further east than the Wath Beck.

Known to both neighbouring areas are the dyke boundaries, which were also recorded on the Howardian Hills (see 4.1.11). The short cross-ridge dykes were all found to the west of the Wath Beck, while one example of a scarp-edge dyke was recorded to the east; it ran along the scarp which defines the top of the dip slope.

Features which are often also termed dykes, and which are perhaps more comparable to features found on the Yorkshire Wolds, were the long lengths of trackways, and such complex multi-phase arrangements of boundaries and tracks, as those recorded on the dip slope itself (see 4.1.9 and 4.1.11). Perhaps both here on the Howardian Hills and on the Yorkshire Wolds, linear boundaries have been more liable, in later periods, to be reused and adapted to other functions.

Very much a feature of the archaeology of the Yorkshire Wolds, are the square barrow cemeteries. Although a few examples are now known in other parts of the country (including the slopes bordering the northern edge of the Vale of Pickering), they are still found on the Wolds in considerably greater numbers than anywhere else. This survey recorded four square barrow cemeteries (see 4.1.8), in an area bordering on the south-western edge of the Vale of Pickering.

However, another common feature of the archaeology of the Yorkshire Wolds, the 'ladder settlement', was recorded only once by this survey; this was to the east of the River Derwent, between the river and the north-west scarp of the Wolds (see 4.1.3). So far, no examples of this settlement type have been found in the project area, further west than the Derwent.

A number of different individuals and organisations have been responsible for the photography which was used in this air survey project. While there has understandably been some concentration on those areas where crop marks are seen most frequently and clearly, this can have advantages for the interpreter; it produces complementary information about the same site, seen at different times or under different conditions. All flyers produced information which no one else had recorded. This has helped to highlight the potential of the rest of the Howardian Hills, beyond the well-photographed area of

the dip slope, and emphasises the benefit of having individuals working locally, who are able to take advantage of conditions. The Northern Flying Programme of RCHME, begun in 1989, has found a number of new sites, particularly in the centre of the Howardian Hills; some of these were recorded in a single sortie.

5.1 RECOMMENDATIONS

5.1.1 Air reconnaissance

Further reconnaissance of the area is being recommended. The potential of areas beyond the dip slope, particularly the western, upland half of the Howardian Hills, is just beginning to be apparent. The extreme west of the area has so far received little coverage because of the limitations imposed by the MATZ. Distributions based on air survey information will always be biased by different factors (eg, those governing the appearance of crop marks see Fig 24), but continued surveillance may discover whether those apparent distributions are capable of being changed.

During this project the APU experimented for the first time with the use of a Reconnaissance Request Form to inform its own flying programme. It is intended to highlight areas which may require improved photography or monitoring, for the following reasons:

- 1 To improve the quality of photography of known sites, whether to gain a better record of detail or to acquire better control to aid mapping;
- 2 To help in the understanding of the nature of certain features, to fill in gaps or make relationships clearer;
- 3 To cover potentially responsive areas which have received little attention in the past.

5.1.2 Other survey work

Selected sites may benefit from a more detailed transcription. The large, double-ditched, curvilinear enclosure HH.40.3.1 mentioned in sections 4.1.1.1 and 4.2.1 would be one candidate. Not all the linear elements of which it is composed, appear to be contemporary. Nor is there a clear relationship between the enclosure itself and a system of trackways which seem to approach it from the east.

Features recorded along the dip slope show a potential for further survey. Some of the linear features are clearly multi-phase; they appear to have been altered or added to at various times, which may have been as a result of a change in function. In this respect it would be useful to learn something about the Medieval land use of this area (see 5.1.3

below). It might be possible to discover whether there is any relationship between features on the dip slope and the earthwork dykes at the top of the scarp, and there may also be relationships with other quite separate types of features such as the square barrows. A combination of methods of survey would be desirable: detailed air-photo transcription (this would probably require additional photography to that currently available), geophysics and excavation.

Fieldwalking of some of the enclosures and linear systems may help in formulating ideas about dating morphologically similar types of feature.

5.1.3 Research

It might be possible to learn something about the Medieval land use of the area as a whole, particularly in respect of the land owned by monastic houses, and whether it was used for sheep pasture. This information might be compared with the distribution of enclosures and linear systems.

There seems to be little known about manorial holdings in the area. Substantial earthworks were recorded adjacent to present-day villages (see 4.1.11), and may be possible candidates.

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7. APPENDICES

7.1 AERIAL PHOTOGRAPHIC SOURCES CONSULTED

NMR Air Photographs

RCHME

National Monuments Record Centre

Kemble Drive

Swindon SN2 2GZ

North Yorkshire County Council

Planning Department

County Hall

Northallerton

North Yorkshire DL7 8AQ

University of Cambridge

Committee for Aerial Photography

The Mond Building

Free School Lane

Cambridge CB2 3RF

York Archaeological Trust

Piccadilly House

55 Piccadilly

York YO1 IPL

7.2 OTHER SOURCES CONSULTED

National Archaeological Record

RCHME

National Monuments Record Centre

Kemble Drive

Swindon SN2 2GZ

Sites and Monuments Record

North Yorkshire County Council

County Hall

Northallerton

North Yorkshire DL7 8AQ

7.3 MORPH2 DATABASE AND ARCHIVE DETAILS

PRI.DBF	234830	28.04.94	1,612 records
MCD.DBF	13478	09.02.94	193 records
GROUP.DBF	11739	25.03.94	267 records
LSD.DBF	17418	09.02.94	202 records
LFD.DBF	96034	26.04.94	852 records
ENC.DBF	45697	10.02.94	365 records
ENT.DBF	2508	09.02.94	50 records
GRI.DBF	33238	07.03.94	786 records
GROUP.FPT	28288	17.02.94	152 entries

The Howardian Hills Mapping Project archive will be deposited in the NMR Archive section, and will include the following:

- 1 Index of contents
- 2 Project specification
- 3 Project report
- 4 Master copy of final inked transcriptions
- 5 Original pencil version of transcriptions
- 6 Map Note Sheets plus Ridge and Furrow documentation
- 7 Air photograph quantification records for each OS map sheet
- 8 NMR Air Photograph cover-searches and loan lists
- 9 Lists of parish code interpretations
- 10 Copy of MORPH2 database, as above
- 11 Correspondence relating to the project

7.4 MAP NOTE SHEET

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

Air Photography Unit

					N ↑	Map sheet number	
						Author	
						Date	
						Site overlap	
						OS 1st Edition	

woodland	parkland	arable			

Illustrative Photos:-

References:-

Comments:-

ROYAL COMMISSION ON THE HISTORICAL MONUMENTS OF ENGLAND

Air Photography Unit

National Mapping Programme

Map Note Sheet

Project Title: HOWARDIAN HILLS	Block No:	Map Sheet No:	Author:
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Sources check list - enter dates main consultation completed

Archival sources

Photographic sources

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<input type="checkbox"/>	NAR record map	<input type="checkbox"/>	CUCAP	Loan number <input type="text"/>
<input type="checkbox"/>	NAR excavation index	<input type="checkbox"/>	NYCC	
<input type="checkbox"/>	SMR record map	<input type="checkbox"/>	PVA	
<input type="checkbox"/>	SMR print out	<input type="checkbox"/>	recent NLAP	
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<input type="checkbox"/>		<input type="checkbox"/>		

Mapping progress	date		
pencil transcription started	<input type="text"/>	<input type="text"/>	days
pencil transcription completed	<input type="text"/>	<input type="text"/>	initials
pencil transcription checked	<input type="text"/>	<input type="text"/>	<input type="text"/>
ink fair drawing completed	<input type="text"/>	<input type="text"/>	
MORPH inputting started	<input type="text"/>	<input type="text"/>	
MORPH inputting completed	<input type="text"/>	<input type="text"/>	
total number of days	<input type="text"/>	<input type="text"/>	

7.5 RECONNAISSANCE REQUEST FORM

Air Photography Unit

N
↑

Map sheet number

Author Date

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RECONNAISSANCE REQUEST FORM
(Please mark sites on grid, number, and document below with additional details).

CROPMARK/SOILMARK SITES

EARTHWORK SITES

BUILDINGS

LANDSCAPE VIEWS ETC

7.6 STATUTORY BODIES

North Yorkshire County Council Planning Department

County Hall

Northallerton

North Yorkshire DL7 8AQ

English Heritage

Fortress House

23 Savile Row

London W1X 1AB

Countryside Commission

John Dower House

Crescent Place

Cheltenham

Gloucestershire GL50 3RA

7.7 DRAWING CONVENTIONS

1:10,000 MAPPING CONVENTIONS: National Mapping Programme.

Ditches; extant or plough-levelled. Variable Line thickness.



Leat, mill race. Arrow indicating direction of flow if known. Variable Line thickness. (Larger artificial water courses as ditches).



Stone and/or earth banks/mounds; extant or plough-levelled. Heavy stipple. Applies also to lynchets, other artificial slopes & wall foundations (not buildings. See 5.4)



Buildings. Unroofed.



Holloways and unsurfaced trackways not defined by other depicted features. (1 mm dashes. Single line per track when braided).



Railway/tramway. (2mm spacing for cross-lines). This convention should be used even if the only visible remains are embankments/cuttings.



Compacted or made stone surfaces/spreads. Medium stipple. (e.g. Paved area, surfaced road, dressing floor).



Area features (small). (e.g. storage pits, grubenhauser, clearance cairns, standing stones) Drawn solid as seen (pit alignments can be stylised). Extant negative features should be drawn with "T" hachures if possible (see 5.9).



Negative features (large) extant or back-filled (0.5mm "T"). (e.g. quarries, fish ponds) Depict as solid if too small to hachure (see 5.8).



Spoil/waste dumps. (1mm dashes at 0.5mm spacing enclosing light stipple). (e.g. mining spoil heaps, saltern mounds) Applies to extant and levelled features. (On large features a 3mm band of light stipple within the dashes will suffice).



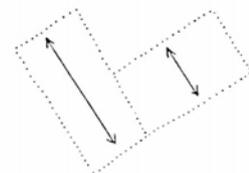
Extent of feature. (1mm dashes at 0.5mm spacing). A "hard" boundary marking the outline of a feature (e.g. used to outline runways of a disused airfield). Only use this when other conventions are inappropriate.



Pits or shafts. Including bell pits defined by a "doughnut" of spoil.



Ridge and furrow. Units are defined by dots (1mm spacing) if not bounded by headlands, banks or ditches or any other feature which has a specific convention. Double arrow to show shape and direction of rig.



Extent of area. (3mm dashes at 1mm spacing. Use .25 pen). A "soft" boundary marking the perceived limit of an activity (e.g. lead mining area. See 2.4).



7.8 TABLES OF RECORDS

The following tables are based solely on the MORPH2 database, arranged by Thesaurus classes.

AGRICULTURE AND SUBSISTENCE (4.1.1)

Group Interpretation	
FIELD SYSTEM	91
PARK PALE	1
VILLA	2
Class Total	94
Interpretation	
CROFT	7
CULTIVATION TERRACE	16
FIELD	3
FIELD BOUNDARY	75
FIELD SYSTEM	10
FISHPOND	6
GARDEN	3
LYNCHET	20
PARK PALE	4
PILLOW MOUND	1
PLOUGH HEADLAND	1
RIDGE AND FURROW	411
STACK STAND	1
WOOD BANK	1
Class Total	559

DEFENCE (4.1.2)

Group Interpretation	
ANTI AIRCRAFT BATTERY	1
CASTLE	2
DYKE	1
FORT	1
SEARCHLIGHT BATTERY	3
Class Total	8
Interpretation	
DYKE	9
GUN EMPLACEMENT	2
MOTTE	1
RAMPART	1
SEARCHLIGHT BATTERY	4
TEMPORARY CAMP	1
Class Total	18

DOMESTIC (4.1.3)

Group Interpretation	
CASTLE	2
SETTLEMENT	4
SHRUNKEN VILLAGE	8
VILLA	2
DESERTED VILLAGE	10
Class Total	26
Interpretation	
HUT CIRCLE	1
MOAT	7
Class Total	8

GARDENS AND PARKS (4.1.4)

Group Interpretation	
FORMAL GARDEN	7
LANDSCAPE PARK	1
PARK PALE	1
Class Total	9
Interpretation	
FORMAL GARDEN	4
GARDEN	3
HA HA	1
ORNAMENTAL POND	26
ORNAMENTAL TERRACE	7
PARK PALE	4
Class Total	45

INDUSTRIAL (4.1.5)

Interpretation	
EXTRACTIVE PIT	1
LIME KILN	5
LIMESTONE QUARRY	14
MILL RACE	2
QUARRY	16
SANDSTONE QUARRY	1
Class Total	39

RECREATION (4.1.7)

Group Interpretation	
PARK PALE	1
Class Total	1
Interpretation	
PARK PALE	4
Class Total	4

RELIGIOUS, RITUAL AND FUNERARY (4.1.8)

Group Interpretation	
BARROW CEMETERY	12
INHUMATION CEMETERY	1
ROUND BARROW	1
Class Total	14

Interpretation	
AVENUE*	1
BARROW	42
GRAVE	4
LONG BARROW	2
ROUND BARROW	52
SQUARE BARROW	62
Class Total	163

*This is a garden feature

TRANSPORT (4.1.9)

Group Interpretation	
HOLLOW WAY	1
ROAD	1
TRACKWAY	3
Class Total	5

Interpretation	
CAUSEWAY	4
HOLLOW WAY	36
ROAD	6
TRACKWAY	145
Class Total	191

WATER AND DRAINAGE (4.1.10)

Interpretation	
DAM	9
DRAIN	7
DRAINAGE SYSTEM	1
FISHPOND	6
LEAT	2
MILL RACE	2
ORNAMENTAL POND	26
POND	21
Class Total	74



Figure 1 Location of the Project Area

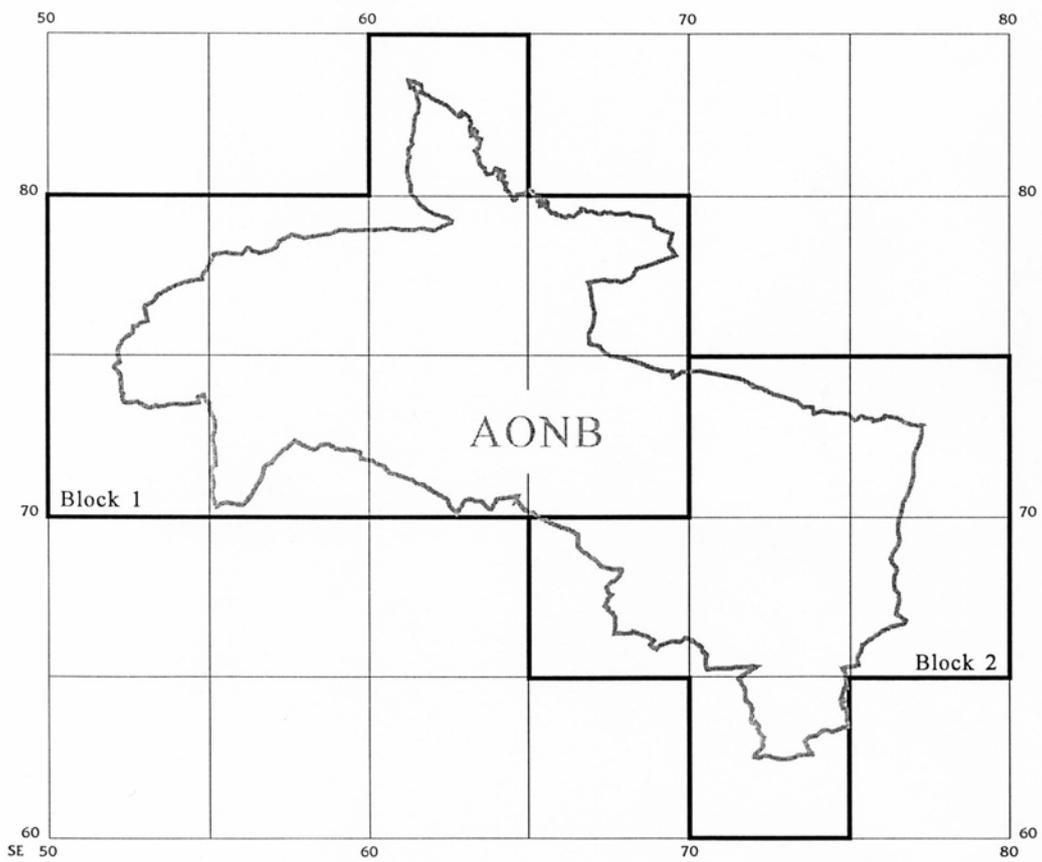


Figure 2 The Project Area

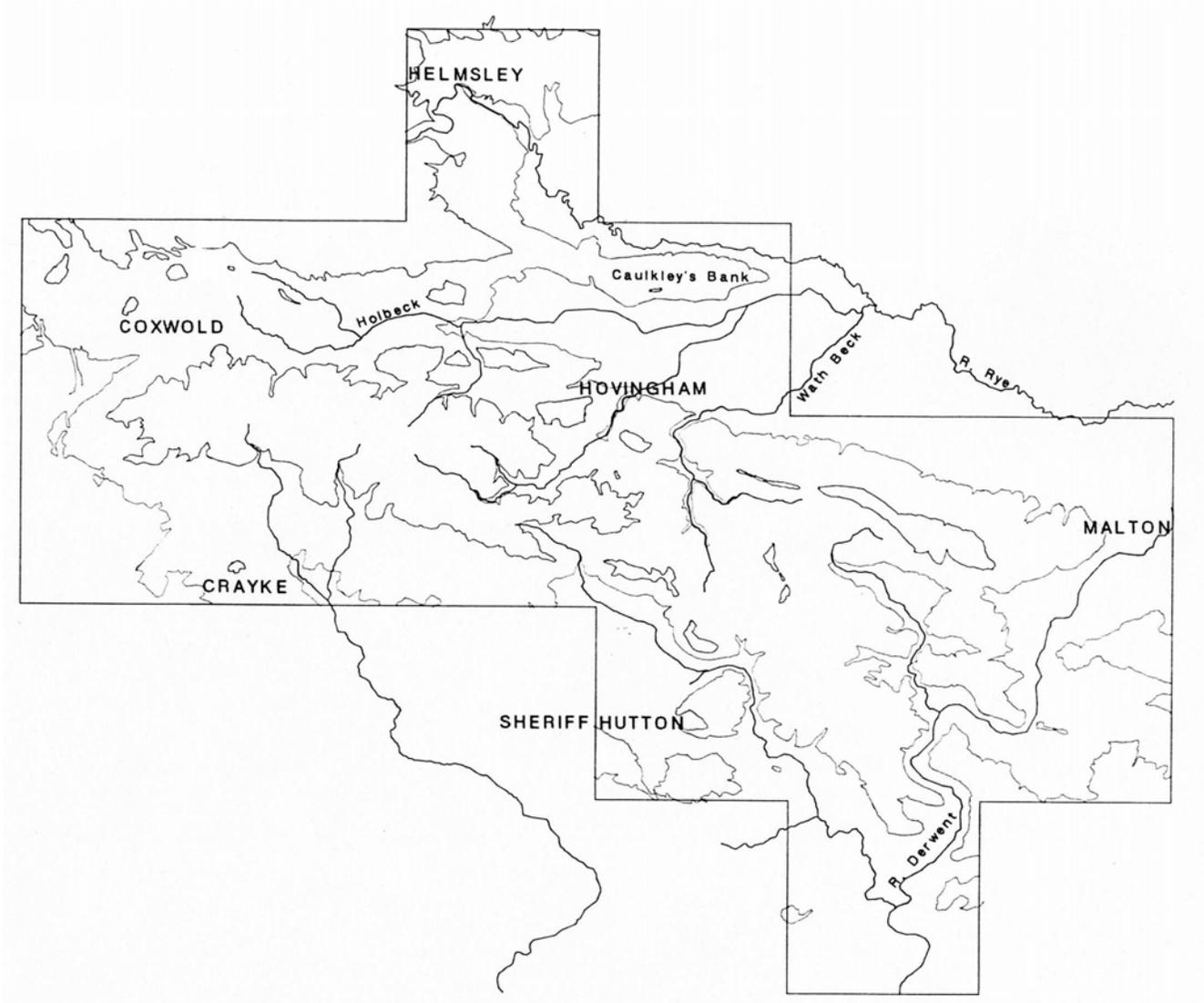


Figure 3 Topography of the Project Area

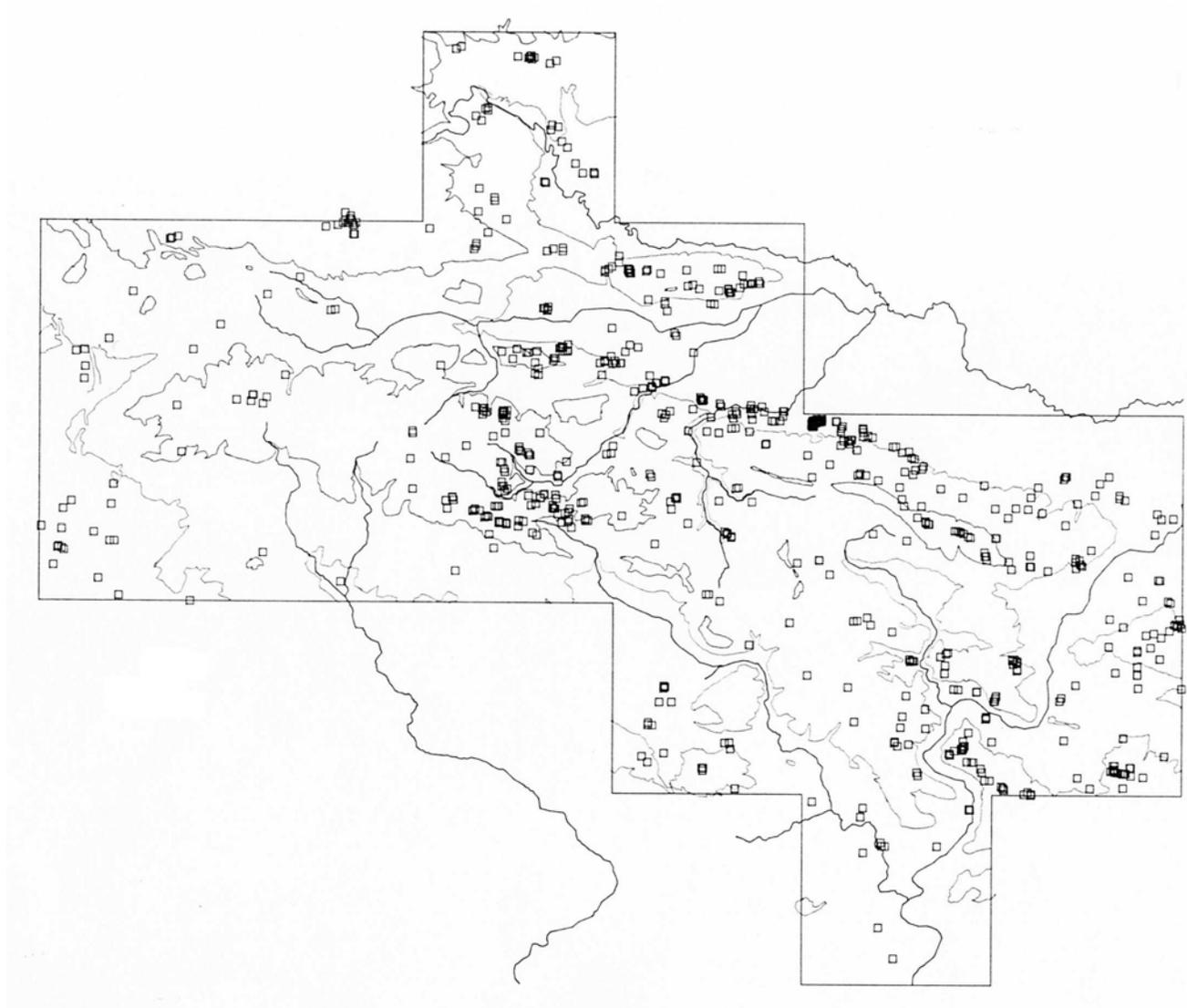


Figure 4 Distribution of crop/soil mark records

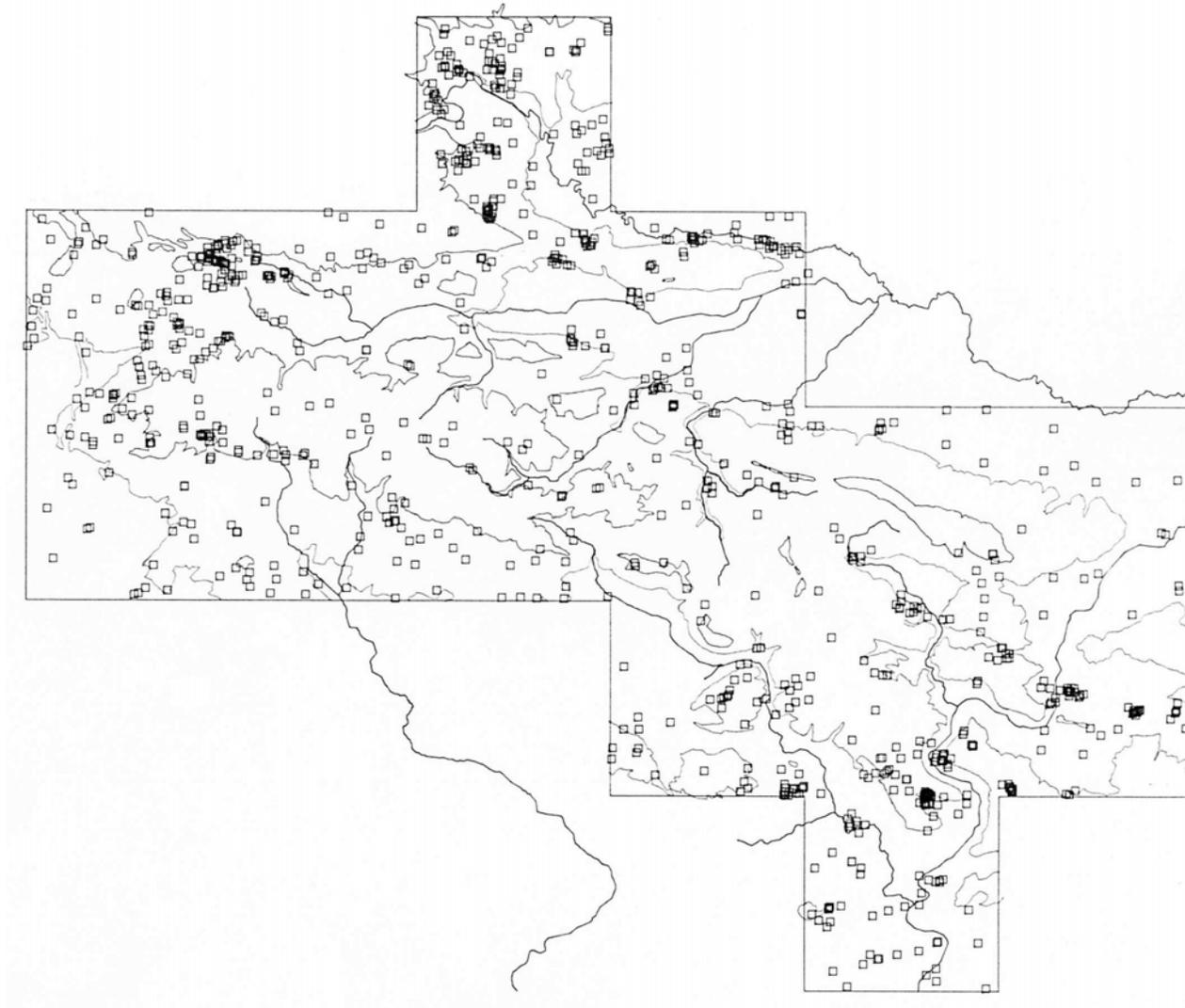


Figure 5 Distribution of earthwork records

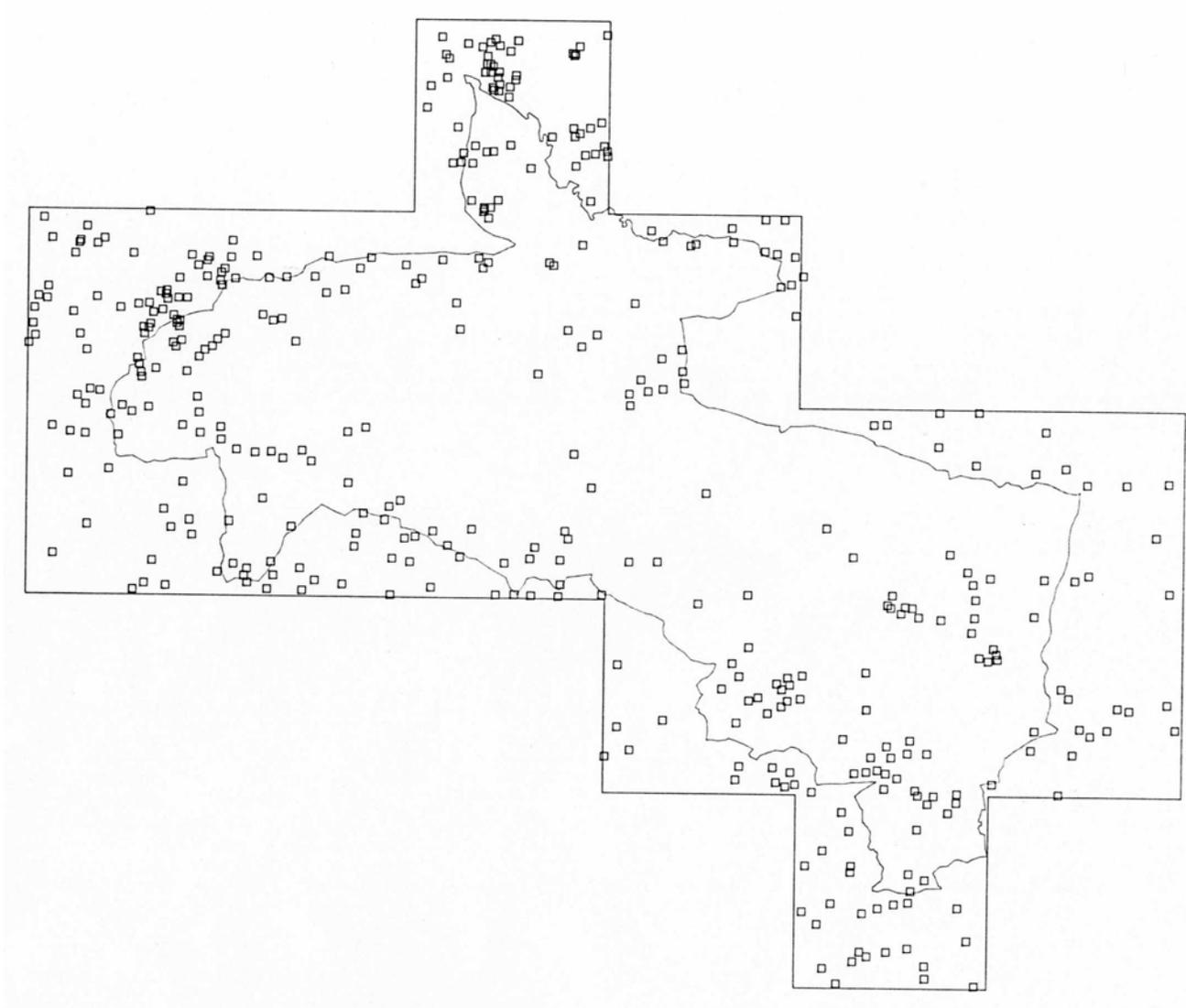


Figure 6 Distribution of ridge and furrow records in relation to the AONB



Figure 7 Extract from the transcription of the dip slope area, between Malton and Hovingham

Allocation of records to different SITE TYPES

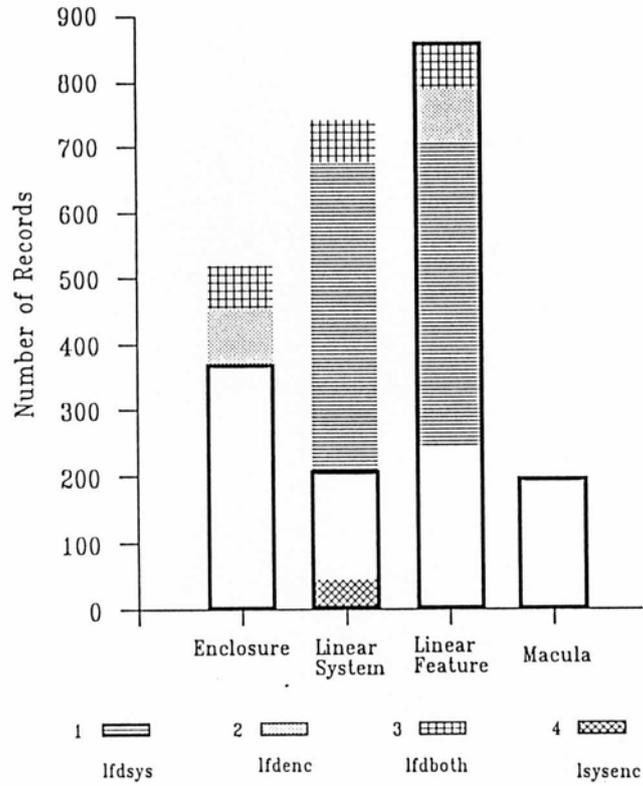


Figure 8 Histogram showing number of records in each MORPH2 table

Proportion of "new" records

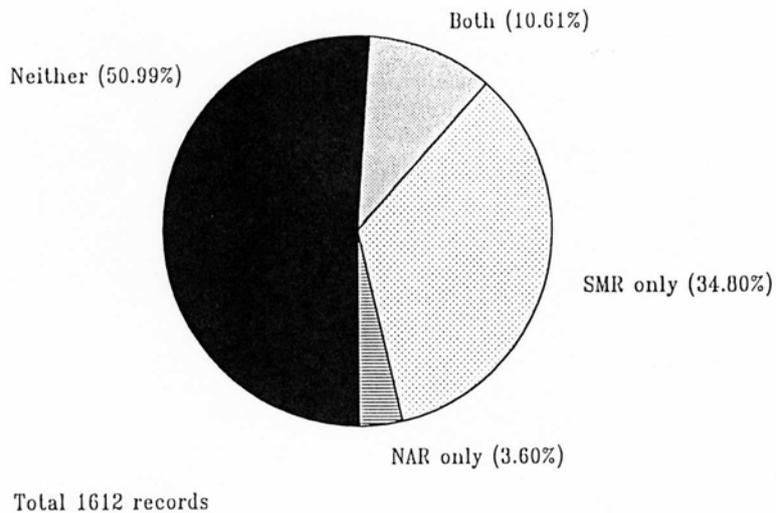


Figure 9 Diagram to show the number of records with and without previous NAR or SMR records

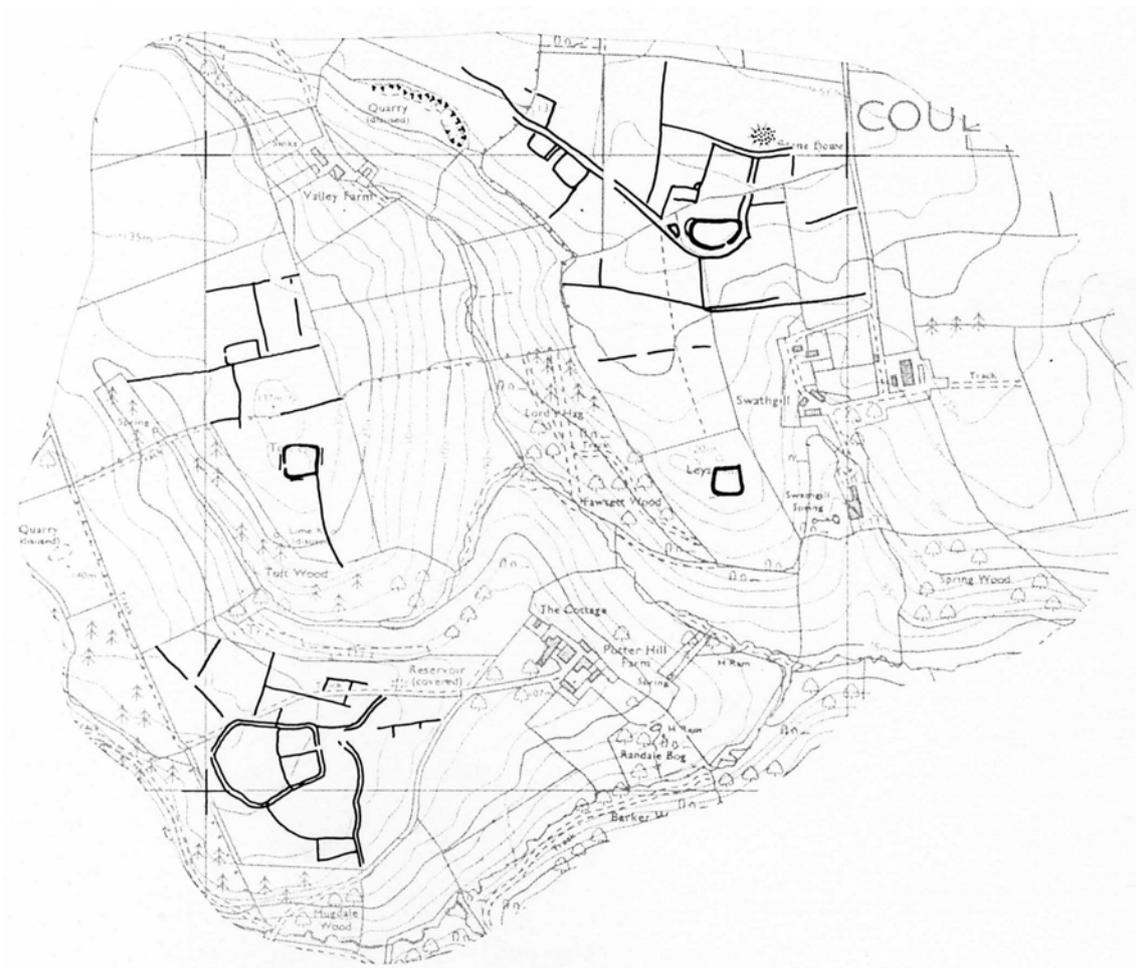


Figure 10 Enclosures in the central part of the Howardian Hills

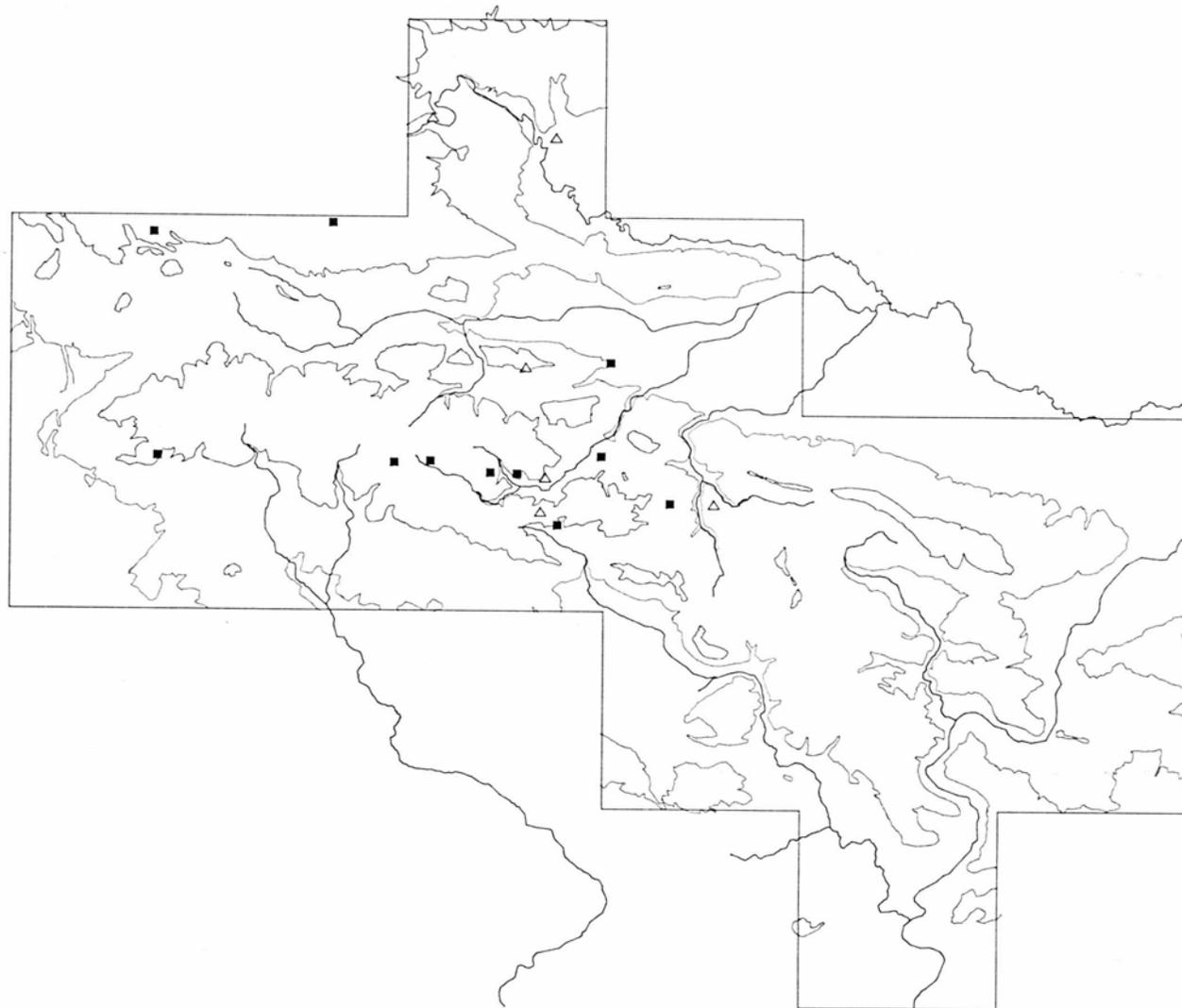


Figure 11 Distribution of Prehistoric enclosures with morphologically similar characteristics

MORPH2 No.	Aspect	Height (m OD)	Grid Ref	Dimensions (in m)	Comments
HH.1.10.1	E	110	SE 5372 7390	50 x 48	
HH.4.11.1	SE	145	SE 5971 7376	51 x 49	attached linear
HH.9.2.1	hill-top	125	SE 5360 7958	52 x 52	entrance to E
HH.29.2.1	SE	230	SE 5812 7985	60 x 60	Stutfold Ring, entrance to E
HH.31.11.1	SE	60	SE 6063 8249	? x 40	incomplete
HH.34.8.1	SE	45	SE 6375 8198	48 x 40	
HH.39.4.1	SE	155	SE 6062 7380	45 x 40	
HH.40.2.1	hill-top	135	SE 6214 7351	50 x 52	Toft Hill, attached linear
HH.41.5.1	SE	115	SE 6281 7348	40 x 50	Leys Hill
HH.41.7.1	SE	95	SE 6352 7335	35 x 35	attached linear
HH.42.2.1	NE	75	SE 6493 7393	50 x 60	
HH.43.6.1	hill-top	110	SE 6340 7249	50 x 50	attached to long linear
HH.43.7.1	SE	95	SE 6383 7219	40 x 40	funnel entrance to SSW
HH.52.4.3	S	100	SE 6302 7615	60 x 56	attached to long linear
HH.52.25.1	E	45	SE 6515 7631	40 x 35	2 attached linears or funnel entrance?
HH.82.3.1	N	70	SE 6777 7269	? x 45	incomplete
HH.84.1.1	hill-top	80	SE 6666 7274	60 x 55	
HH.110.11.1	N	45	SE 7985 6951	50 x ?	incomplete, attached linear

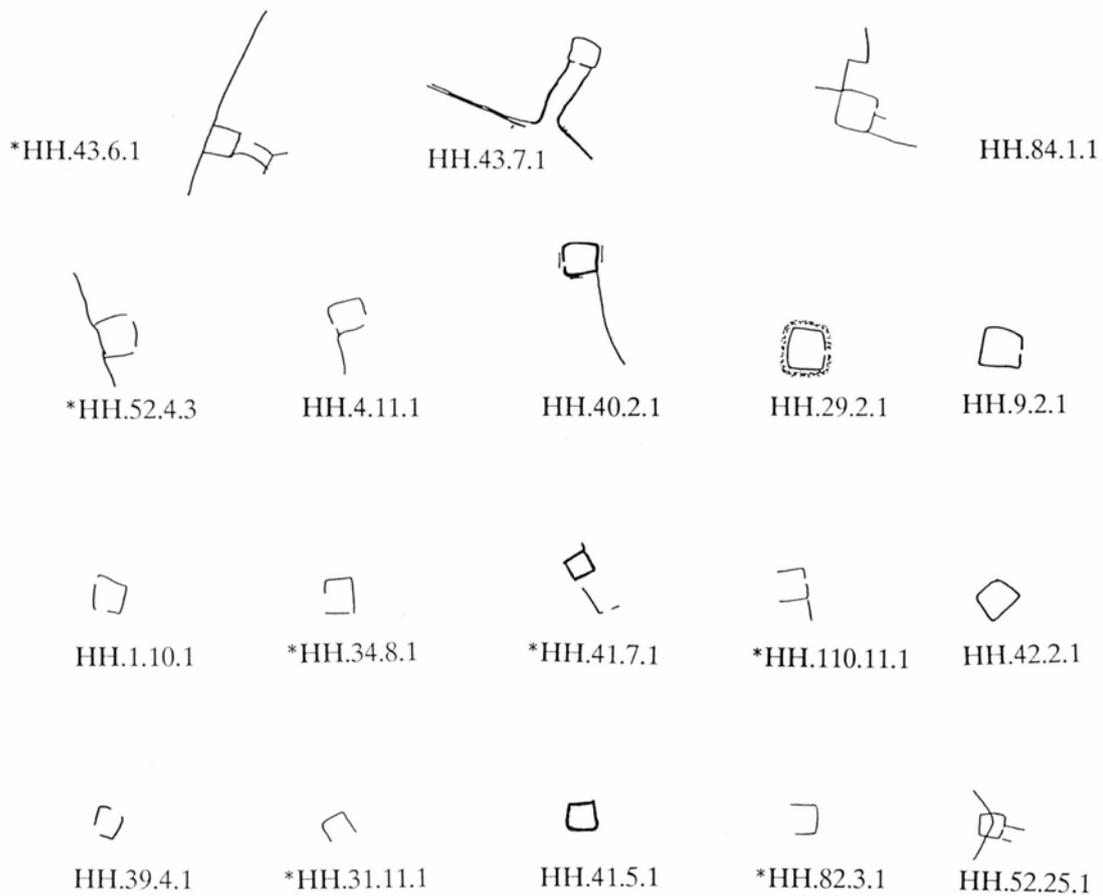


Figure 12 Illustrative examples of Prehistoric enclosures with morphologically similar characteristics

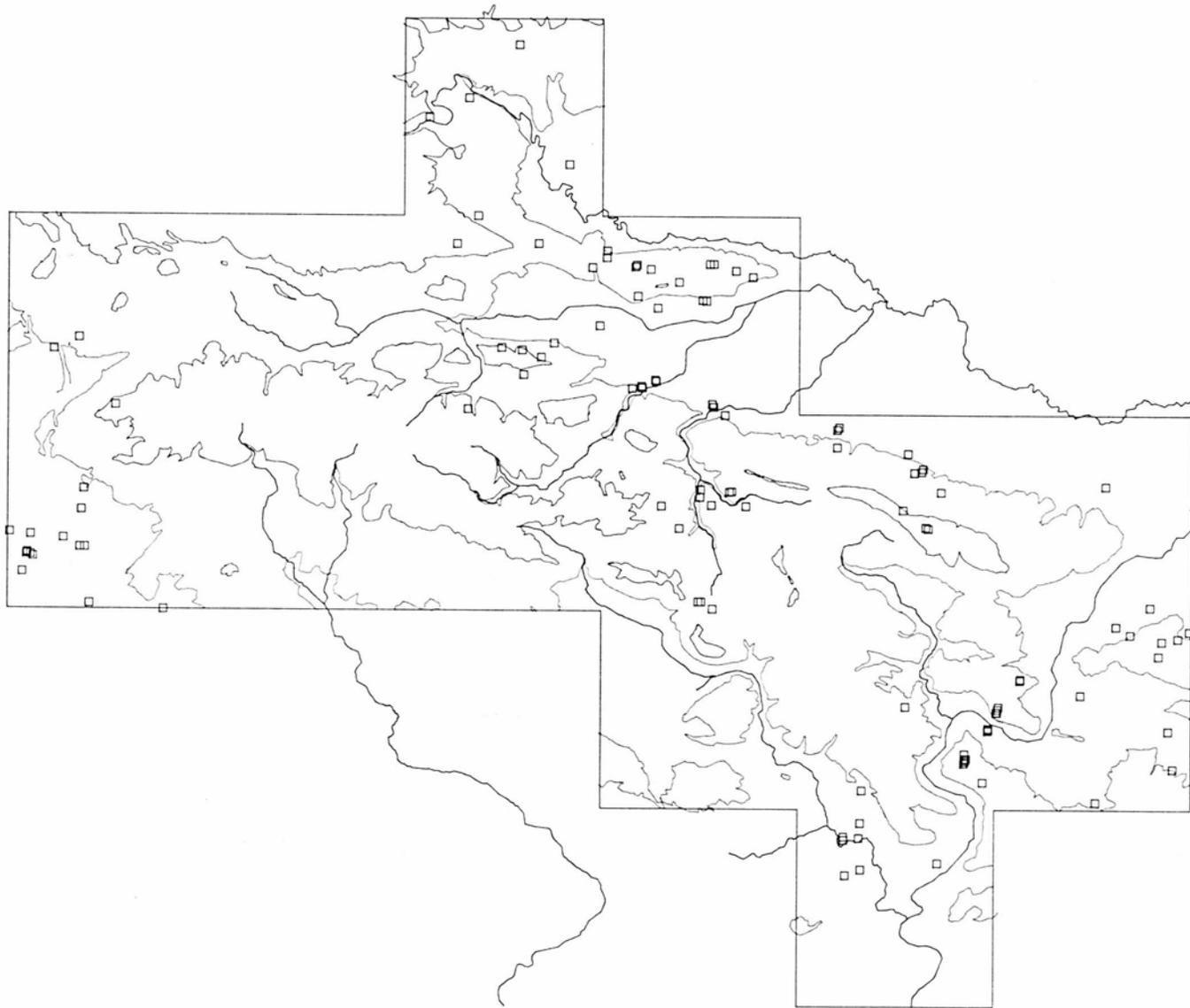


Figure 13 Distribution of Unknown period records

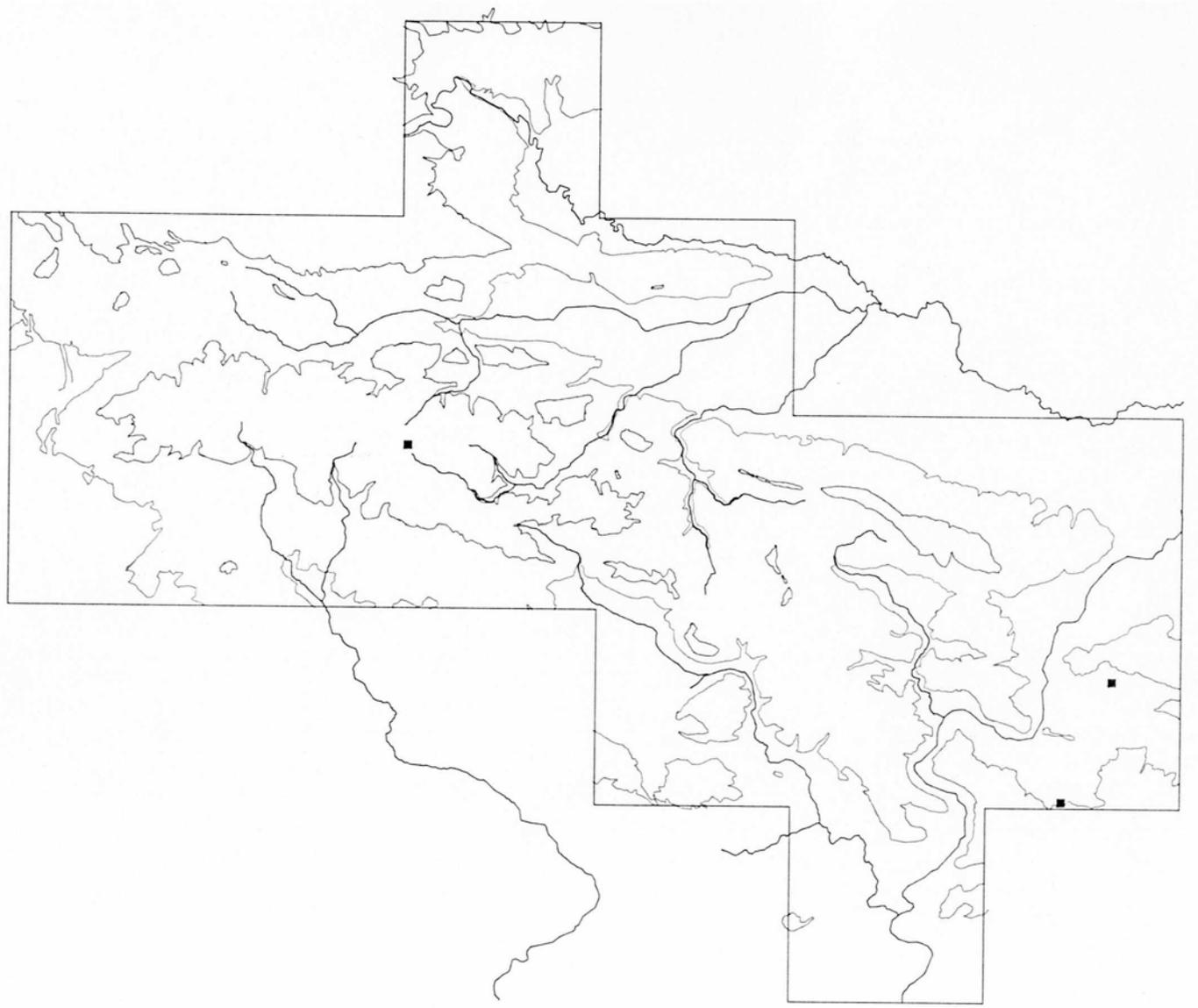


Figure 14 Distribution of Neolithic period records

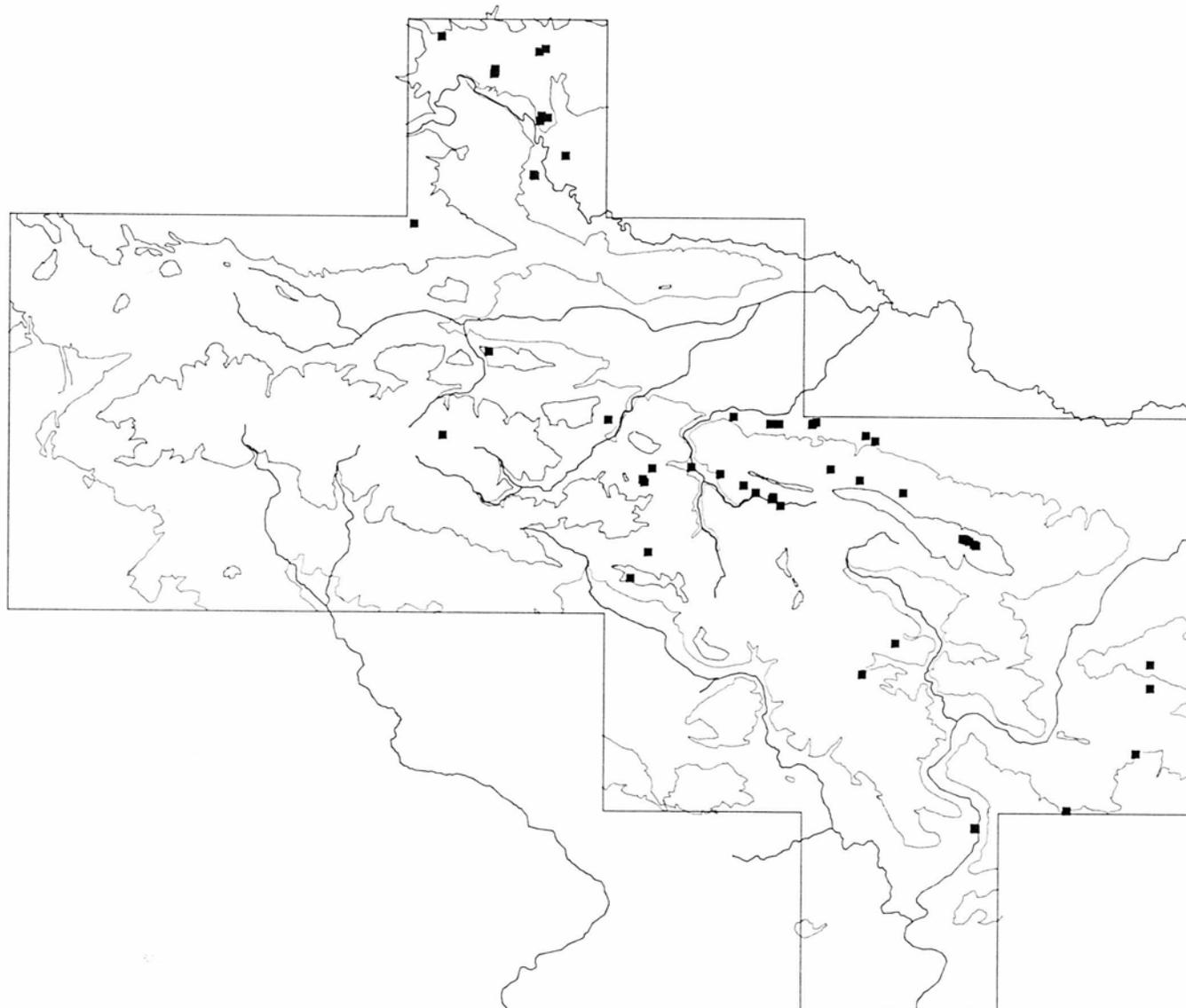


Figure 15 Distribution of Bronze Age period records

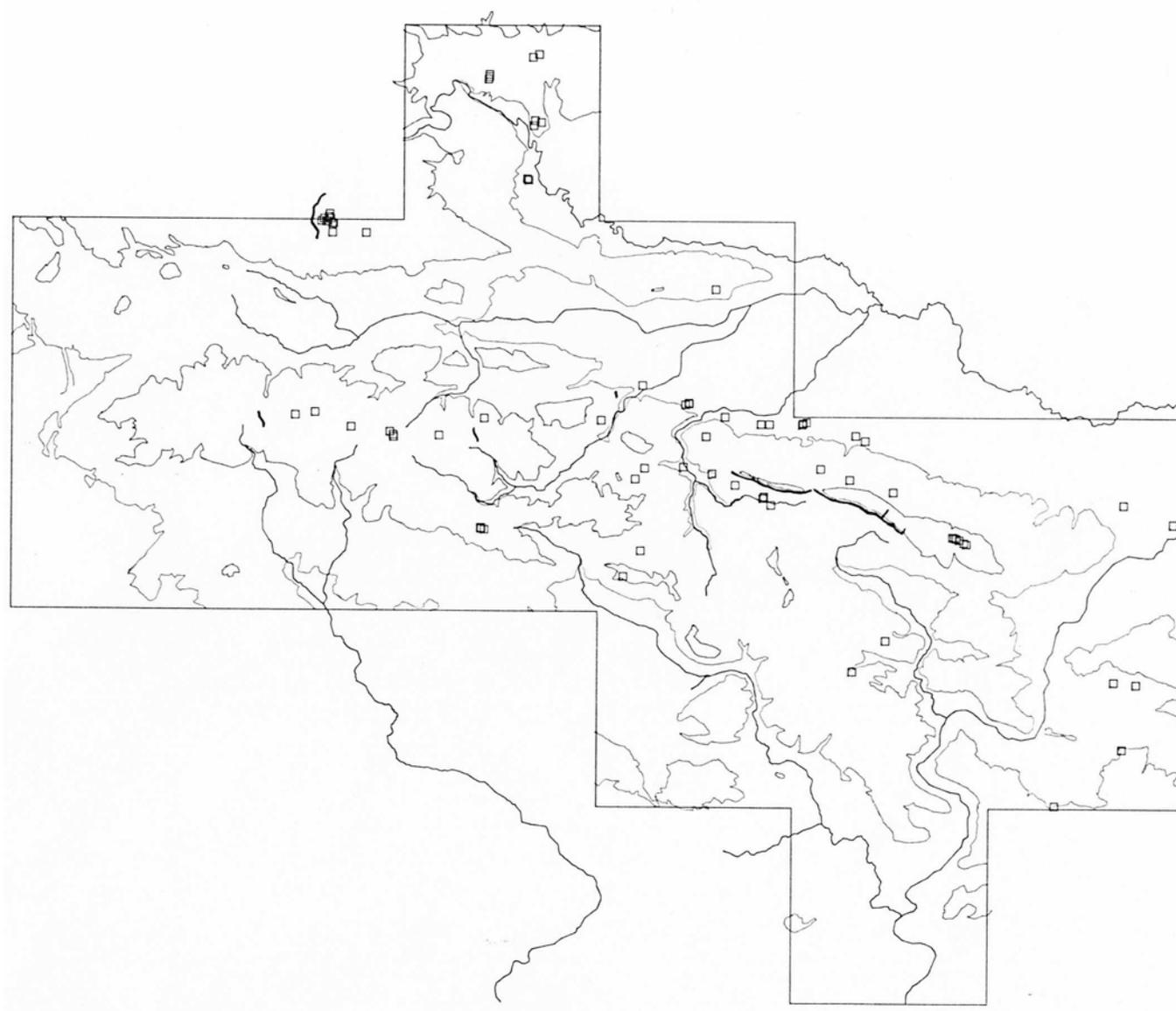


Figure 16 Distribution of barrow and round barrow records with those of cross-ridge dykes and scarp-edge dykes

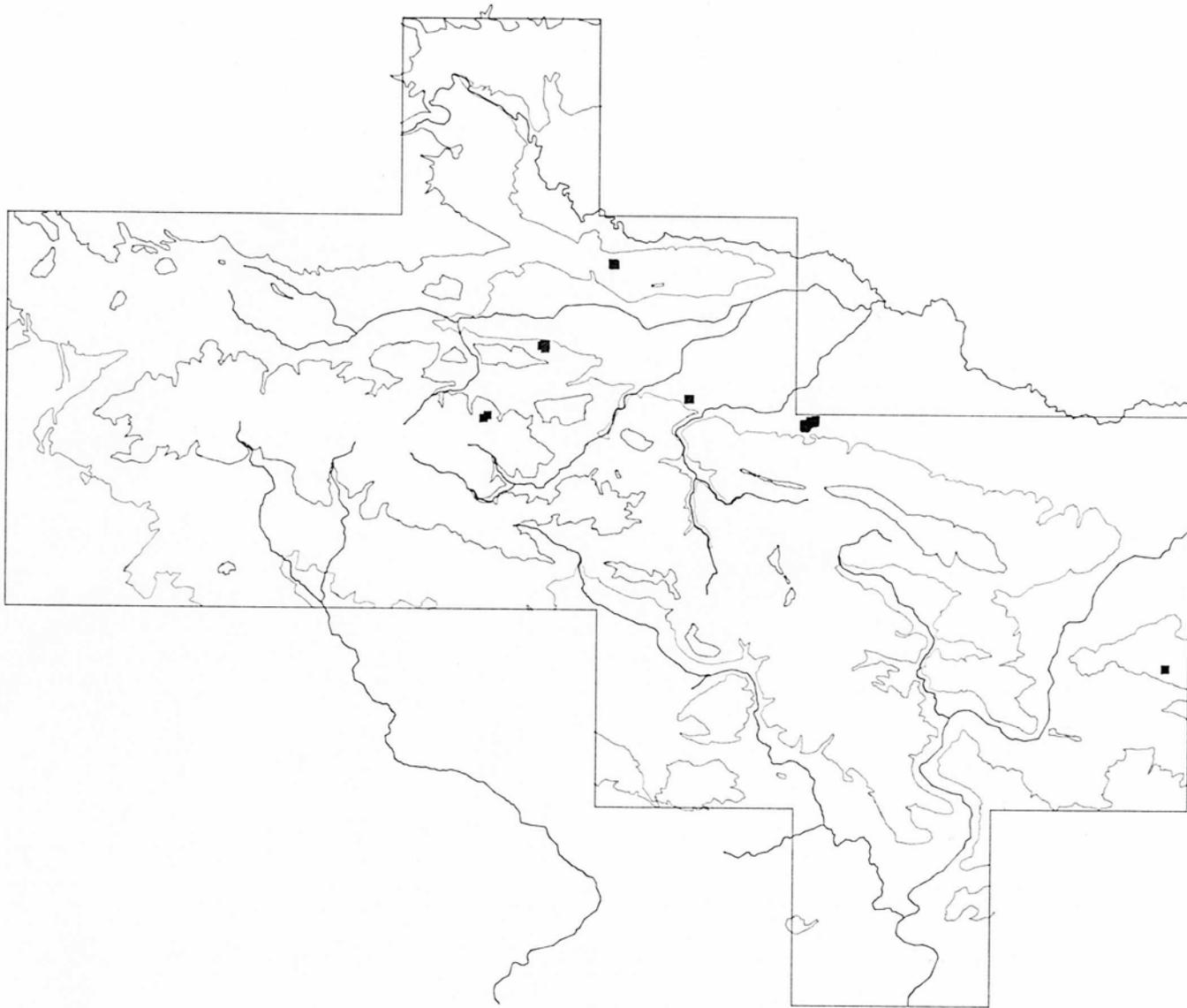


Figure 17 Distribution of Iron Age period records

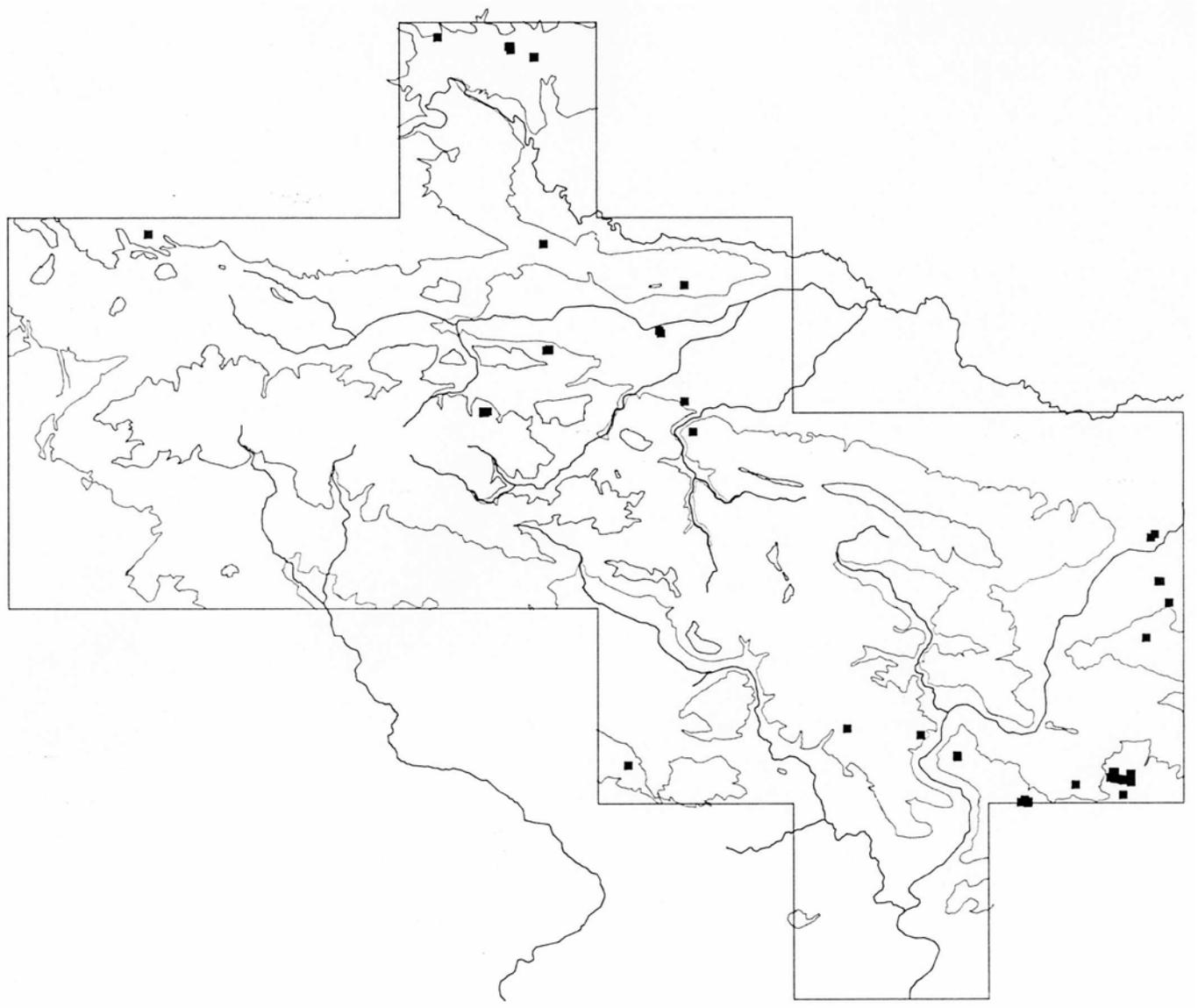


Figure 18 Distribution of Roman period records

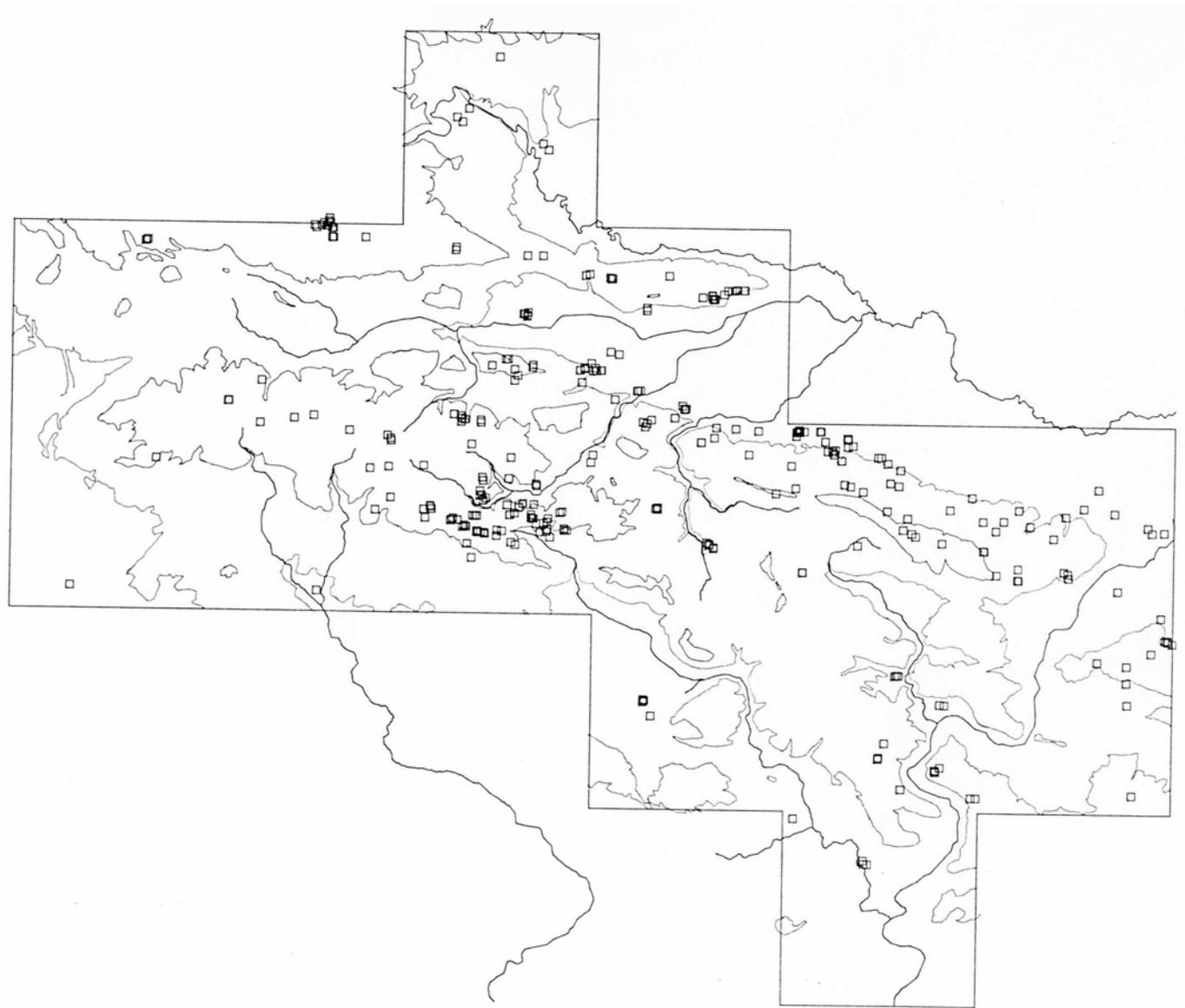


Figure 19 Distribution of Unknown Prehistoric period records

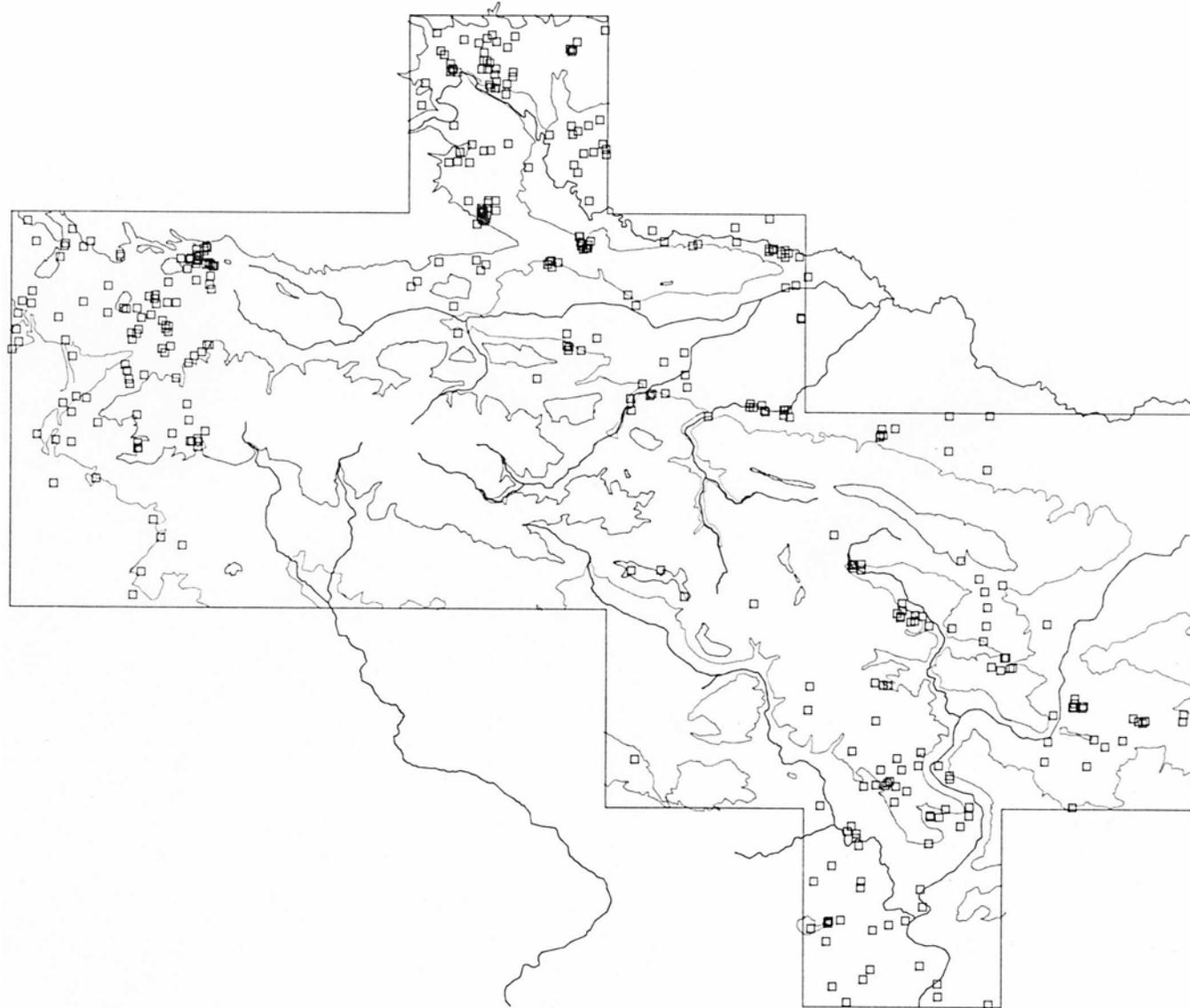


Figure 20 Distribution of Medieval period records

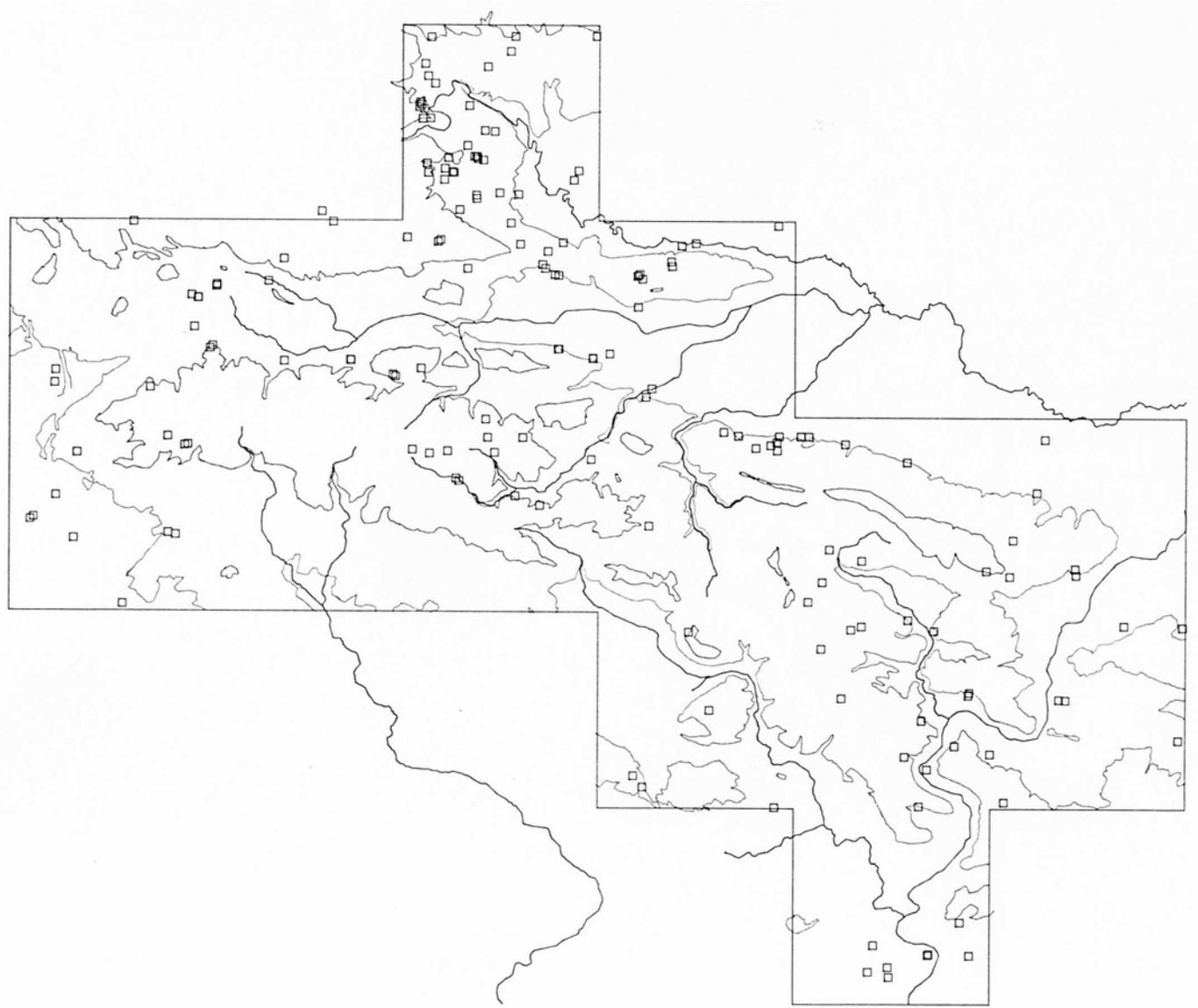


Figure 21 Distribution of Post-Medieval period records

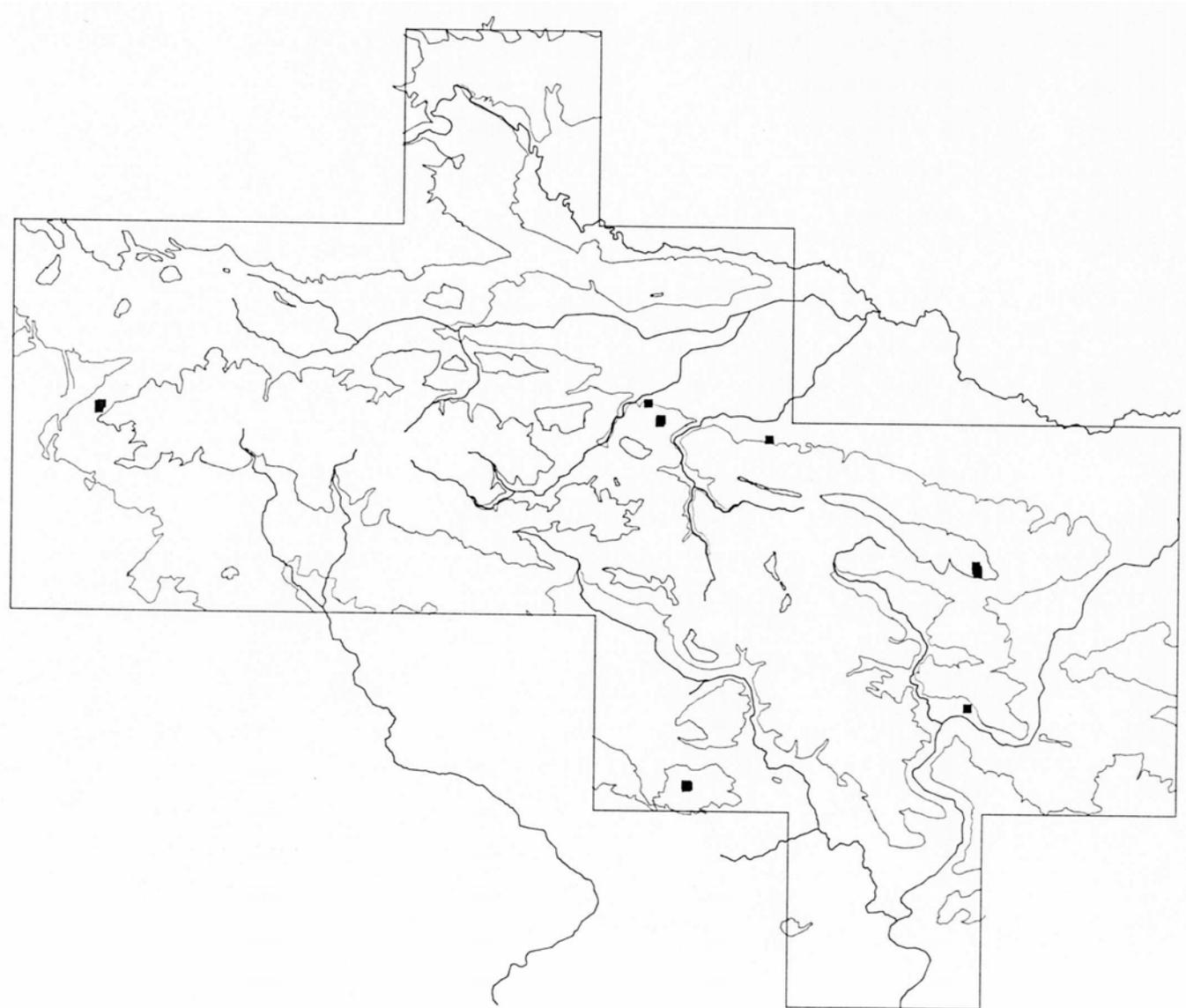


Figure 22 Distribution of 20th Century period records

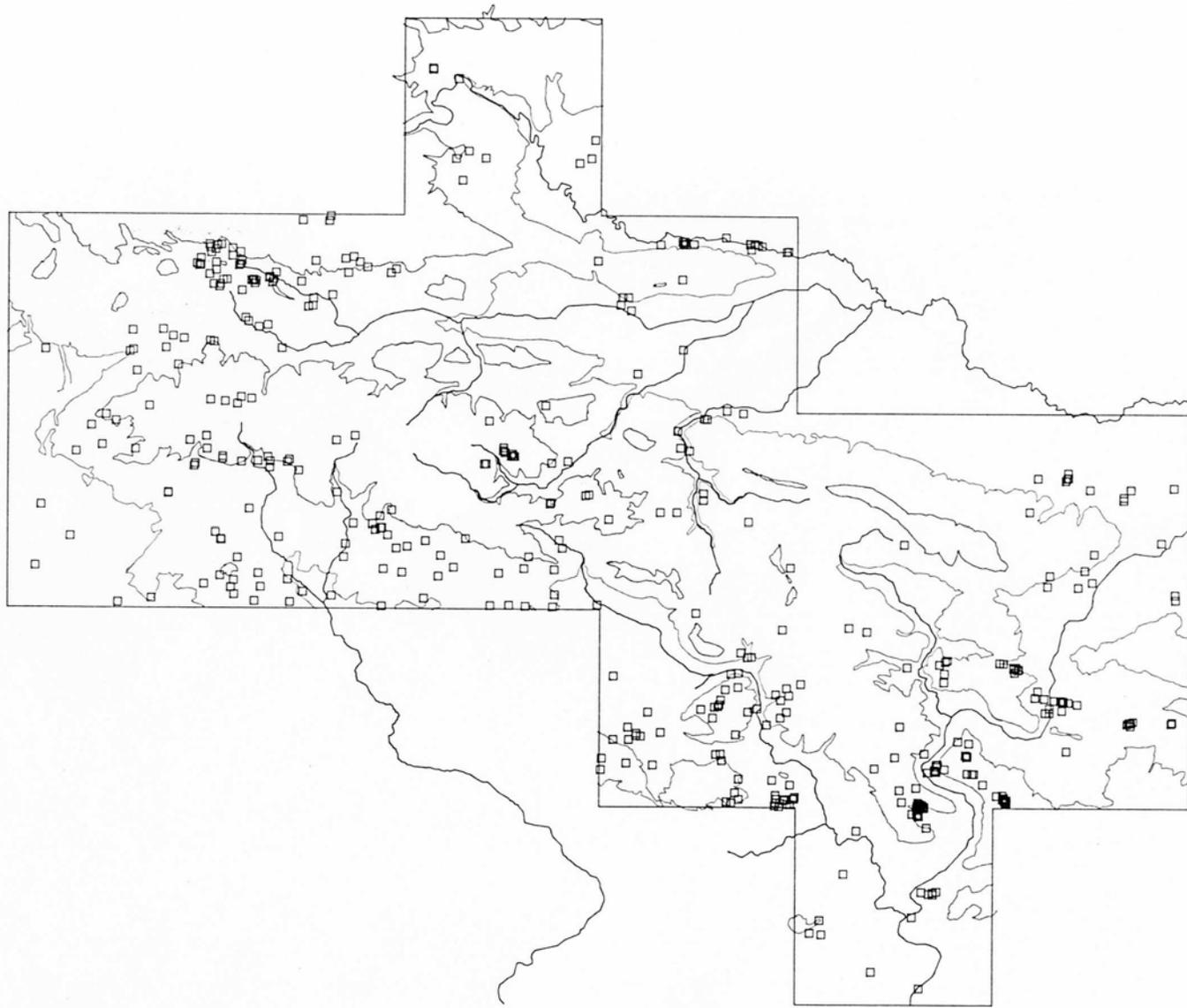


Figure 23 Distribution of Unknown Medieval period records

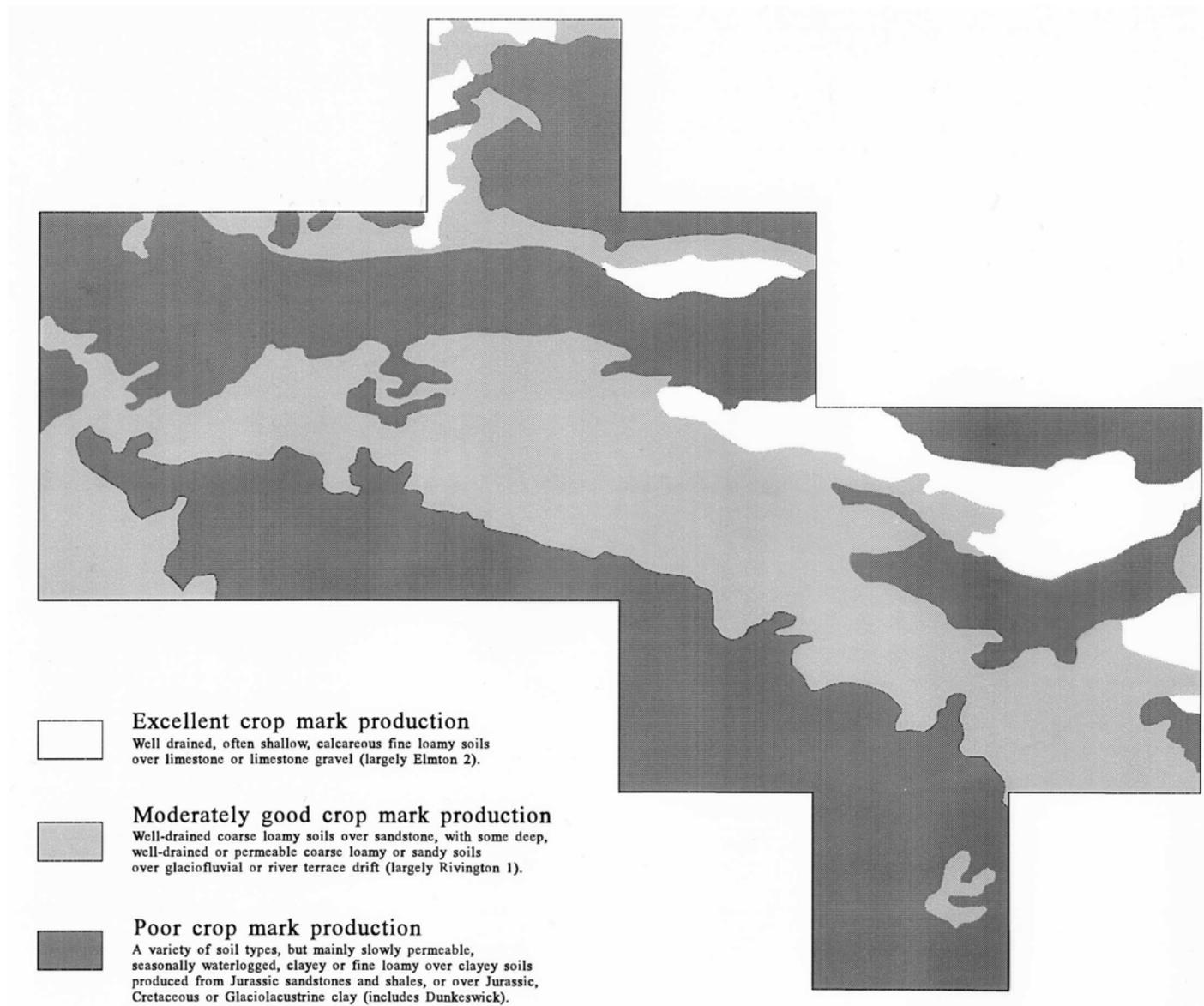


Figure 24 Soils: broad groups of soil types which affect the creation of crop marks

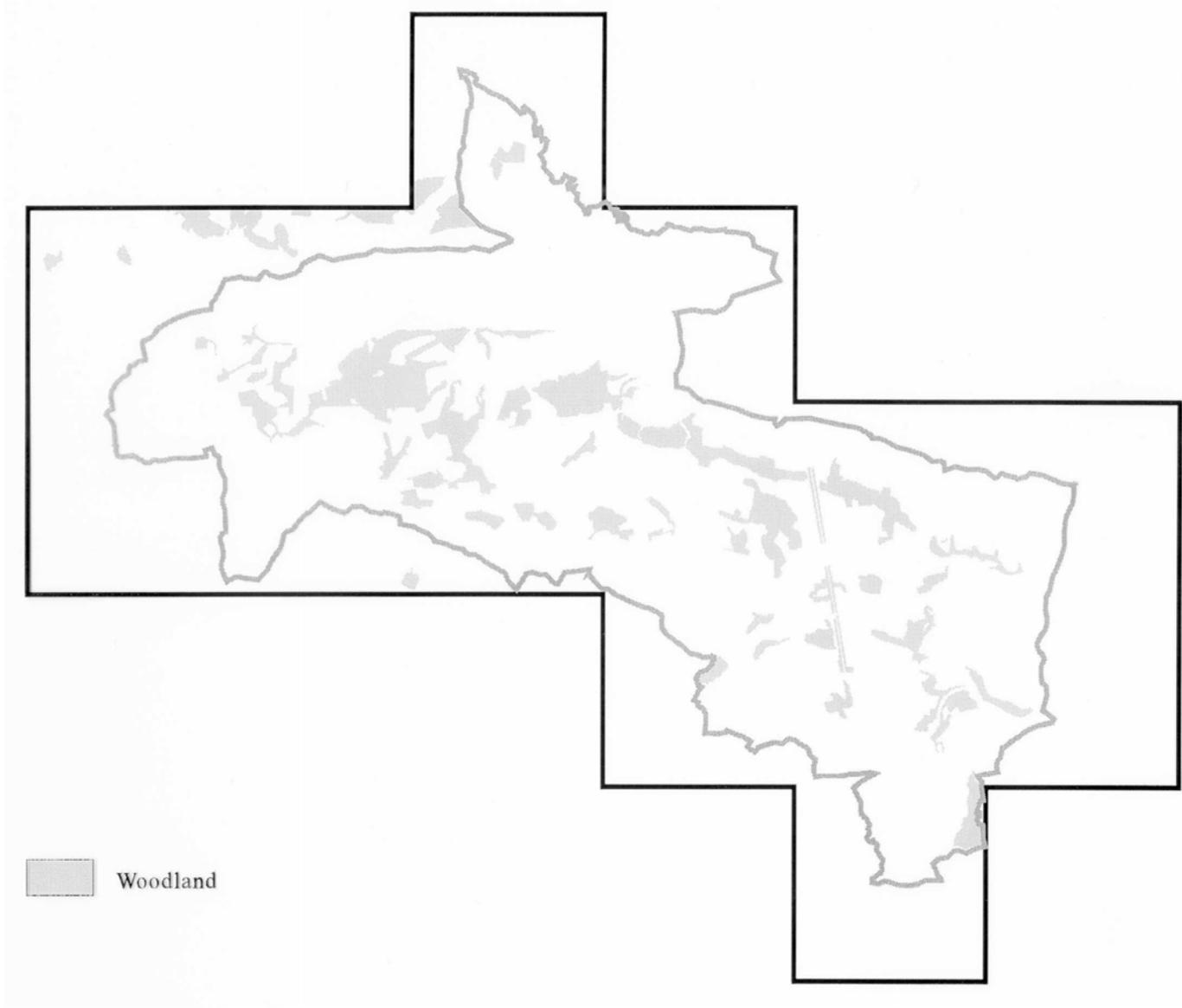


Figure 25 Areas of woodland, and the AONB boundary

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