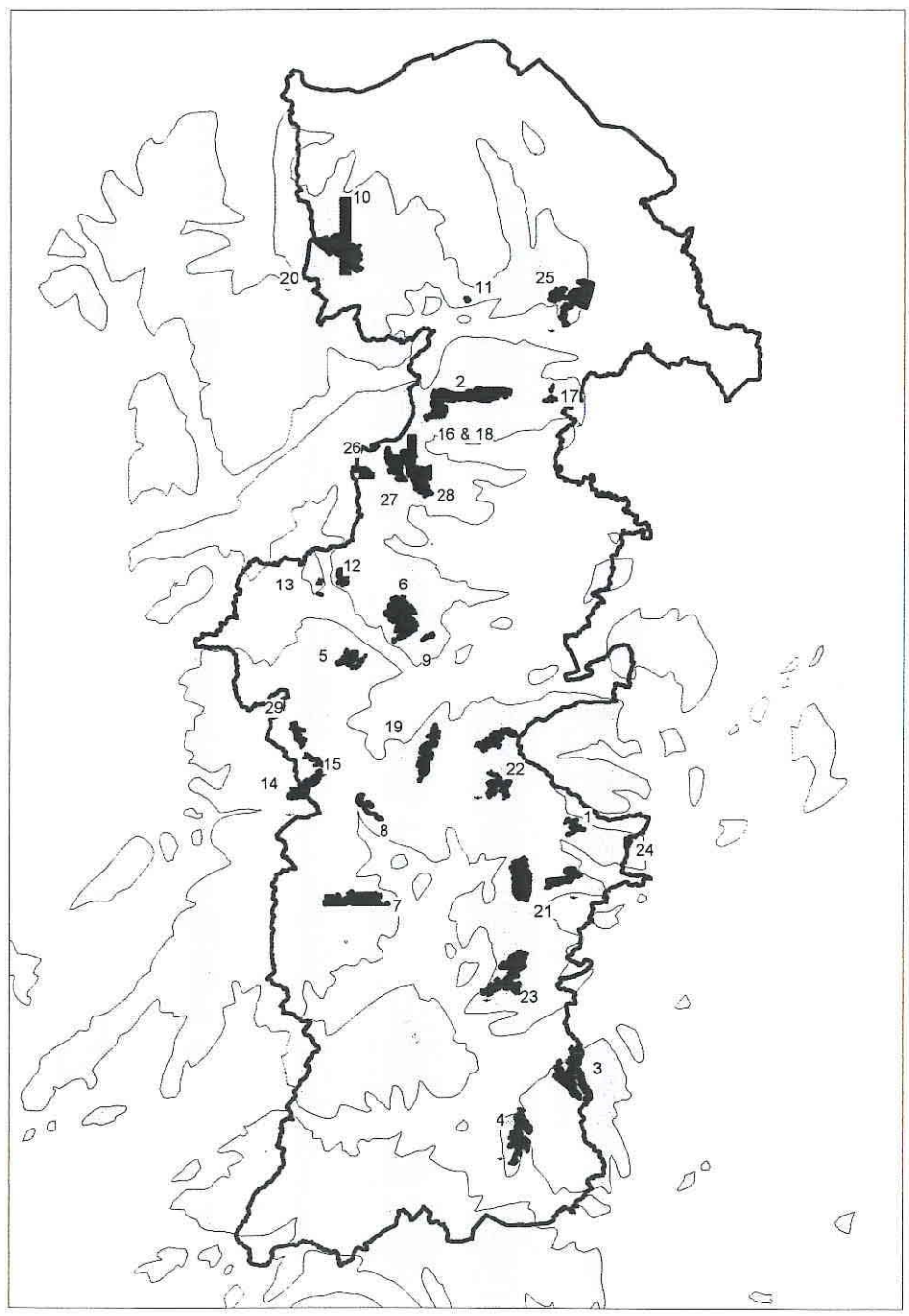
THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

Uplands Fieldwork in Clwyd and Powys 1989-1999: A Synthesis



CPAT Report No 318

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Report for RCAHM WALES

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Part I: Introduction

Ten years ago the Clywd-Powys Archaeological Trust, henceforward referred to here as CPAT, conducted an assessment of the archaeology in its uplands (Dorling *et al* 1989), one of four reports produced at that time by the Welsh Trusts with the support of Cadw: Welsh Historic Monuments. The report established the known densities of sites in the uplands, the extent of recent and current archaeological surveys that had been undertaken by both CPAT and other organisations, and the perceived threats to the archaeological resource in upland areas. It also developed a series of recommendations and objectives for the future.

Since that report was circulated CPAT's involvement in the uplands of Clwyd and Powys has been extensive, and not a single year has passed without one or more field projects of the rapid identification type being completed. Now, ten years on it is apposite to look back at what has been achieved and determine whether from the data that have been accumulated, we are any closer to comprehending the impact of man on the uplands and also establishing the nature and scale of our historic upland landscapes. That this overview has been completed is due to the provision of grant in aid from the Royal Commission on Ancient and Historical Monuments of Wales (RCAHMW) under the Uplands Initiative.

Background

Powys is an upland county, the old county of Clwyd less so. Throughout this text the term Clwyd has been used to denote that area which from 1996 has been divided up into the new counties of Denbighshire, Flintshire, Wrexham County Borough and the eastern half of Conwy County Borough. For the sake of completeness it should also be noted that it incorporates a small portion of the former county of Meirionydd which was transferred to the new county of Clywd in 1974, and several parishes on its extreme southern edge which were integrated with Montgomeryshire (Powys) in 1996. Despite all these local government changes Clwyd remains a useful shorthand term to describe north-east Wales.

In the 1989 report it was established that in broad terms around 4314km^2 (or about 75% of Powys and 35% of Clwyd) could be classed as upland, using the frequently adopted contour of 244m (800') OD, as a base level (Dorling *et al* 1989, 5). *The Countryside Survey 1990* produced by the Department of the Environment was even more far-reaching, claiming that 84% of Powys and 51% of Clywd was either true upland or marginal upland, the latter defined as land occurring on the fringes of the uplands at medium altitude. Of the other regions of Wales only Mid-Glamorgan at 52% and Gwynedd at 49% came close to Clwyd while Powys was wholly exceptional (Barr *et al* 1993, 146).

Regardless of which of these sets of figures is cited, it is evident that uplands extend across the majority of the region, and that by implication a greater part of our visible archaeological resource is located in the uplands, even allowing for the assumption that settlement and other activity is likely to have been denser at lower altitudes.

In 1989 it was also evident from even a cursory examination of the data held in the regional Sites and Monuments Records (SMR) that the archaeology of the uplands was poorly known and researched, and that many upland areas had seen little if any archaeological fieldwork in the past (Dorling *et al* 1989, 2). Where there were records they were often biased towards the prehistoric era, a reflection of the selective recording adopted by many archaeologists, whether professional or amateur. A comparison of two of the illustrations in the 1989 report – Figs 19 and 22 showing, respectively, prehistoric and medieval sites recorded in the SMR at the time – make this point graphically.

Furthermore the SMR incorporates records going back into the 19th century, many of which are deficient in morphological detail and sometimes in locational information. It is a truism that one cannot interpret what one does not understand, but equally there is always a tendency not to record what one does not understand. Some basic site types remained unidentified well into this century. The classic example is perhaps the 'platform house', particularly relevant to central Powys, which as an earthwork type was only elucidated by Cyril and Aileen Fox in the 1930s (e.g. Fox 1939). In this context the Royal Commission description of the most extensive groups of platforms in Radnorshire

in 1913 is illuminating: '... just north of Beili Bedw farm is a confused mass of earthworks – mounds, banks and earthworks, not marked on the Ordnance Survey sheet, of which from superficial observation only, it is difficult to arrive at any conclusion concerning their origin. .... It seems evident that they were not thrown up for military purposes, and they may possibly be due to agricultural operations. On the other hand tradition is persistent that they represent the site of the old church of St Harmon' (RCAHMW 1913, 143).

The lack of comprehensive upland surveys in Clwyd and Powys was one of several concerns expressed in the 1989 report and, although not explicitly stated in that report, a belief that at least one methodical field survey should be conducted in each upland area of the region became a significant tenet of CPAT policy in succeeding years. A framework was provided for this programme by the division of the region into twelve discrete upland blocks utilising topographical criteria, the plan of which is reproduced here as Fig. 1.

Funding for systematic, rapid identification surveys came from Cadw in the early years, and from 1993 when the distribution of grant aid for uplands work was delegated to the RCAHMW under what became known as the Uplands Initiative. CPAT was successful in attracting funding from both bodies on a regular basis and this has continued up to the present. Development pressures in the uplands have led to other programmes of rapid fieldwork and this has been particularly the case as a result of the upsurge in the proposed generation of power through windfarms. Further surveys in the region have been funded by other organisations such as the Countryside Council for Wales and Severn-Trent Water, with the overall result that in the ten years since 1989 CPAT has conducted nearly thirty surveys of varying scale.

It should be remembered that CPAT is not the only organisation that has been working in the uplands of Clwyd and Powys. Denbighshire County Council has run surveys on the Clwydians and more recently on Llantysilio Mountain, the National Trust have worked with CPAT on Abergwesyn Common, south-east of the Elan Valley in central Powys, and with Dr R Skeates in the Brecon Beacons and in 1998 on Abergwesyn Common too, Mr P Dorling on behalf of the Brecon Beacons National Park has undertaken field survey in the Black Mountains, individually and in conjunction with CPAT, and the Royal Commission has worked in west Radnorshire. Other than those joint efforts involving CPAT directly and mentioned above, the surveys listed in this section will not be considered further in this assessment, though each has added significant data to the overall record of the uplands as will become apparent when more specific syntheses materialise.

There has been other research in the uplands in the form of excavation at Carneddau (Gibson 1993), and Pen-y-fan and Corn-ddu (Gibson 1997), and in palaeoenvironmental analysis, in the Carneddau area (Walker 1993). Also some of the Cadw-funded projects such as that on round huts (Silvester 1998) and more particularly the pan-Wales Deserted Rural Settlement project (Silvester 1997b; 1999b) have had a direct impact on the study of the uplands, but these will only be referred to where they are especially significant to the present overview.

Areas Covered

Over the last ten years, CPAT has conducted thirteen extensive field surveys of uplands with resources provided by either Cadw (up to 1992) or RCAHMW (from 1992/93). In addition Severn-Trent Water have funded two years of survey on their Vyrnwy Estate in northern Powys, and the Countryside Council for Wales also funded one survey on their Pale Estate which covers the western side of Y Berwyn. Twelve windfarm proposals have had archaeological assessments during this period, and in several cases there has been follow up work to these assessments during the construction of those windfams that were given planning approval. All the surveys are listed in Tables 1 to 4 and depicted on Fig 2.

The extent of these survey areas, as might be anticipated, varies considerably. The Cadw and RCAHMW-funded studies have covered between c 9.5km^2 on Mynydd y Ffynnon and nearly double that on and around Radnor Forest where 19.8km^2 was examined. The windfarm catchments tend to be smaller. Some cover well under 1km^2 as at Mynydd Llanelidan and Mynydd y Cemmaes, yet much larger areas have also been investigated such as the 13.6km^2 of the proposed Pentrefoelas windfarm.

In total 251km^2 have been systematically surveyed in the field, about 5.8% of the uplands in Clwyd and Powys. There have in addition been a small number of desk-top assessments focusing on the uplands, notably on the Berwyn (Silvester 1992a; Hankinson 1995a), but in the absence of complementary fieldwork these will not be referred to further in this synthesis.

The spread of surveys across the twelve zones that were defined in 1989 is reasonably even. Two zones in the south of Powys (Fig 1, Areas 1 & 2) - the Brecon Beacons/Fforest Fawr and Mynydd Eppynt - have seen no work by CPAT, but large parts of the former have now been covered by the former National Archaeological Survey of RCAHMW (Leighton 1998) and by Dr Skeates and his team, while the latter contains the extensive Sennybridge Military Range with all the incumbent practical problems of access. Only one other zone, Area no 7, which holds the small discrete upland blocks of Long Mountain and the Breiddin, has not been visited. With the study of the Radnorshire Commons under this year's Uplands Initiative, each of the remaining zones has been the subject of at least one major field survey by CPAT, and most have seen smaller, subsidiary surveys as well.

Many of these survey areas were wholly or predominantly across open moorland, whether commons as in Radnorshire and the Black Mountains or on private estates belonging to large corporate landowners such as Severn Trent Water (Lake Vyrnwy) and Welsh Water (Elan Valley and Mynydd Hiraethog). The studies in Radnorshire (Hills and Commons) and Breconshire (the Black Mountains) have deliberately adopted the moorland edge as their perimeter. A rather smaller number of the studies have ranged across upland that has been partially enclosed and usually improved. The earliest survey in Carno/Dwyrhiw covered very little open moorland and was mainly enclosed upland, and some surveys such as Mynydd Hiraethog and Y Berwyn have been transects which ran across the moors and onto farmland. Several windfarms - Llidartywaun, Bailey Hill and Reeves Hill for instance - were also promoted on enclosed farmland.

Methodology

The approach adopted by CPAT to all of its surveys since 1989 has remained broadly consistent. Systematic fieldwork was proposed as the only satisfactory mechanism for identifying and recording data on the wide range of site types likely to be encountered in the uplands. Transect walking at intervals of 30m was adopted as a suitable method, although it was appreciated that in some types of vegetation small-feature archaeology might be overlooked, particularly in specific types of dense vegetation. Experience over several years has resulted in a wider transect pattern of 50m being used on high altitude moors such as Y Berwyn and around the Elan Valley where it was felt that any archaeology was likely to be buried beneath the peat. Teams of two or a maximum of three persons have been used, any more being considered inefficient for transect walking, and from the early years at least one member of the team on any particular project will have had considerable experience of fieldwork in upland environments, important in the identification and interpretation of both the archaeology and its setting.

Vertical aerial photography was utilised for the fieldwork, occasionally in conjunction with, though normally in preference to, large-scale Ordnance Survey maps. The value of using aerial photos in the field had become apparent to the fieldworkers of the Fenland Survey in the 1980s (Silvester 1991a) and the returns were equally in evidence in the totally different environment of the Welsh uplands. In open terrain with few physical landmarks new archaeological sites could usually be identified immediately through visible anomalies on the photo or from changes in the vegetation patterns, this information being subsequently transferred to gridded film overlays. Aerial photos were also invaluable in planning and implementing the transects that were walked.

In the early surveys aerial photograph mapping was a retrospective exercise; linear features and complex sites were defined on the photos using chinagraph pencils and this information was transferred to the 1:1000 map overlay using a Grant Projector. The introduction of computerised mapping has added a new dimension to the recording system and to the generation of illustrative material. Several of the most recent projects – the Black Mountains phase II (Hankinson *et al* 1998a); Radnorshire Commons (Hankinson and Thomas 1999), and the follow-up work on the Trannon windfarm (Hankinson *et al* 1998b) – have been preceded by a phase of mapping. Ideally, however, mapping and fieldwork should be run in conjunction so that fieldwork observations can inform the

mapping programme, something which is not normally possible because of the limited resources available.

Incorporation of information into a GIS system has also led to some changes. The use of a digital OS map base, hand in hand with AP-mapping allows the accommodation of archaeological data within a flexible framework and its transferral directly to the SMR. It should also facilitate the interrogation and analysis of that data. The film overlays that carried all the site location information for the early projects have been phased out, the last ones being produced for windfarm operations in 1994. Indirectly, too, this change in the system speeded up the discontinuation of the overlays which mapped an area's vegetation. These were seen as a long-term aid to establish patterns of land-use and exploitation, but with increasing pressure on resources they have had to be abandoned.

A Global Positioning System (GPS) handset has only been used once to date, in the Black Mountains, where, as aerial photography was also available to the field team, the inherent inaccuracy and unpredictability of the GPS was felt to outweigh its obvious benefits.

Sites were and still are recorded and sketched in the field using pro-forma sheets which in their layout have been modified only slightly over the ten years. This information has then transferred into a project database which has become more SMR-compatible over recent years. A relatively brief report for limited circulation has been produced as a matter of course for all projects: these are listed in the reference section at the end of this report. More rarely fuller publication is achieved.

The nature of the records has changed a little over the ten years. In part this is due to the increasing experience and expertise of the field team, the individual members of which have all been involved in upland work for at least five and in some cases the full ten years. Where there has been a significant change is in the breadth of the archaeology recorded. Since the earliest Black Mountains project (1996/97) there has been a greater emphasis on recording what might be regarded as the peripheral features of the uplands such as quarries and holloways. Previously full records were not always created for the ubiquitous quarry while the holloway or trackway was usually marked on the overlay map but not necessarily given a unique number for the SMR. That this has changed is apparent from the site numbers recorded in recent surveys where 30% of the features in the Black Mountains II survey were quarries (Hankinson *et al* 1998b, 5), and 25% of the Radnorshire Hills sites were quarries and nearly 13% were undifferentiated mounds (Hankinson and Silvester 1997a, Appendix 1; and see below page 13 and Table 4 where this change is quantified). One or two other problems of recording have not been satisfactorily resolved, most obviously the question of how to delineate and record the often very extensive remnants of post-medieval peat cutting. Only for Trannon Moor, Carno has the actual extent of peat extraction been mapped (D Thomas in Hankinson *et al* 1998b), and the time resource of this exercise lies beyond what is feasible for studies promoted under the Uplands Initiative (Fig 3).

Constraints on Site Identification

There are a number of constraints which have a fundamental impact on the presence and identification of archaeology in the uplands, namely altitude and topography.

Altitude. It appears to have been accepted following Darvill's assessment of upland archaeology that site densities drop off above 430m (1410') OD (Darvill 1986, 20), though the recent RCAHMW consultation paper on the Uplands Initiative has taken this to extremes by suggesting that 'land above the 400m contour is believed to be largely sterile' (RCAHMW, October 1998).

An analysis of the figures from the field programmes and also from their rationalisation within the SMR for the last ten years demonstrates the fallacy of these views. For the 2760 records in the database, 1692 sites (or 61.2%) are over 400m OD, 917 sites (33.2%) are over 440m and, remarkably, 281 (10.2%) are over 500m OD (Fig 4). It is perhaps of no surprise that barrows and cairns together with boundary stones emerge as the highest features above sea level on the list: Cader Bronwen barrow on the Berwyn at 784m OD heads the list and a boundary stone on the Offa's Dyke path in the Black Mountains is at 700m OD. But while it is rare to find an undiscovered cairn on the high ridges many of the boundary stones have never been recorded properly. Shelters, quarries and shooting huts show as high as 650m OD in the Black Mountains, a round hut with accompanying

pound (the Fuallt settlement), which is believed to be Bronze Age, is located at 526m OD on a ridge in southern Montgomeryshire, and there are post-medieval house sites at around the same altitude on the ridge. House platforms of putative medieval date appear regularly above 400m OD, and as high as 460m OD, and in several of the geographical areas that have been examined: the Radnorshire Hills, the Black Mountains, Y Berwyn, the southern Montgomery uplands and around Lake Vyrnwy.

Altitude, without doubt, is a determinant of settlement and other human activity and it is self-evident that this activity does drop off at high altitude because of the deterioration in the climate and the exposed conditions. But it must also be recognised that human activity can be broken down into at least three types:

i) settlement activity which necessitates continued though not necessarily uninterrupted use of a particular tract of land. This will fade out at a higher altitudes because of the physical constraints.

ii) episodic activities such as summer grazing and peat cutting which will usually be seasonal and may well leave a limited range of physical indicators.

iii) solitary activities such as the construction of a burial cairn, the erection of a set of boundary markers or the construction of a leat.

Each of these types may utilise a different altitude zone though there will of course be considerable overlap. But their appearance or non-appearance will relate to the nature of the particular upland block in which they appear and also its absolute height. To propose a specific height above sea level and use it as a yardstick for all upland zones is an unhelpful generalisation built on deficient data. Other factors must be taken into account (see below) and each upland zone needs to be assessed in its own right to establish its own 'ceiling', both for general settlement activity and the more sporadic operations that it witnessed, and also for land use at different periods of time. On Mynydd Hiraethog even modern enclosure extends to 440m OD!

Topography. No two upland areas are exactly the same, for the geomorphology, the underlying geology and the drainage networks give each their own often distinctive appearance. Nevertheless, there are broader patterns in the topography of the Welsh uplands which influence almost certainly influence the archaeological return, either generally or for certain periods.

It has become increasingly evident that the archaeology of our uplands is not uniformly distributed across the whole area. Most noticeable is the tendency, in many areas, for archaeology to 'congregate' around the upland periphery, in as far as the boundary of any particular survey conforms to the what is perceived to be the lower edge of the upland. For several of the large-scale projects undertaken in the last ten years – in the Black Mountains and in Radnorshire – the boundary of the survey has been the edge of the enclosed land, and this in a sense is arbitrary in that it is dependent on neither height nor landform. Earlier surveys adopted the transect system – on Y Berwyn, Mynydd Hiraethog, and Trwm y Fawnog north of Lake Vyrnwy – the survey terminating either on the lower slopes in enclosed land (though always above 244m OD) or arbitrarily in the middle of the moorland.

If we focus on what may be termed the 'gross return' from fieldwork, this distributional patterning can be well observed on the Radnorshire uplands. Two figures reproduced here for Glascwm and Llanbedr Hills (Fig 13) and for Cilfaesty Hill (Fig 12), are based on the Radnorshire data of 1997 and 1999. A cursory examination of both shows that sites tend to be more prevalent around the edges of the commons. A similar pattern appears further south in the Black Mountains (Fig 5) where the topography is even more extreme. And it appears elsewhere as on the north side of Lake Vyrnwy. Such a distribution pattern is only to be expected: the upland edges will generally be lower than the upland heartlands, and they will also be more accessible from nearby lowlands. Broadly speaking the more remote the upland tract the smaller the amount of archaeology.

Relatively small blocks of upland, separated from neighbouring blocks by valleys which are enclosed and farmed today, and broadly accessible from all directions are likely to reveal high levels of activity in the past. This is certainly true for the Radnorshire uplands cited in the previous paragraph, and even the Black Mountains tend to be broken up by deep valleys. Indeed valleys without doubt influence settlement especially at high altitudes. A extensive moorland massif, penetrated by large numbers of valleys will yield more archaeology than an uninterrupted tract of upland. And this is where on present evidence the greatest dichotomy occurs. Unbroken expanses of moorland often coupled with high altitude as in the central Cambrian Mountains will normally offer a poorer archaeological return. Y Foel windfarm with only nine sites - an average of 2.5 per square kilometre -

and many of these on the edges of surrounding valleys is a typical example, as is Mynydd Nantcarfan with 3.6 sites per square kilometre (Table 3). The more extensive transect survey in the Elan Valley and Abergwesyn Common demonstrated much the same, for the high return of 9.7 per square kilometre was heavily weighted by sites complexes immediately above the valleys. Perhaps the most atypical in this respect is Mynydd Hiraethog where two programmes of work have revealed large numbers of sites on moorlands that extend over many square kilometres. Here, however, the archaeology shows interesting variations in its nature and particularly its date.

Vegetation and Peat Cover. Certain types of vegetation create an environment that is not conducive to the recovery of archaeological data, though it is difficult, especially from the surveys of more recent years which do not have the benefit of vegetation overlay maps, to quantify this aspect of the studies except in the broadest terms. Bracken represents one of the main problems, not least because it tends to colonise areas of better soils which have hosted earlier activity and may retain archaeological traces. On the commons of Radnorshire and Breconshire it is particularly prevalent, and effectively prevents systematic survey between June and December, thus limiting the search season or forcing a return to areas already examined. There are, too, some places so heavily infested that even when the bracken has died back during the winter, the dense matting of dead fronds is so deep that it effects a disguise for all but the most prominent archaeological remains.

More problematic is heather, especially where it has been allowed to grow without any control over it for at least a couple of decades. It can then reach heights of nearly one metre, effectively swamping any archaeology that is present. On Mynydd Hiraethog, a couple of shooting butts under heather were discovered only when a fieldworker fell into them, and in the same area and also on Ruabon Mountain boundary features were identified where they were cross by recently mown strips through the heather, only to be totally lost when they ran into the uncut vegetation. Heather moorland tends to be found at higher altitudes where archaeology is assumed to be sparser. The cyclical argument implicit in this equation is obvious.

Heather as well as other vegetation is to be found on the blanket bog which tends to coat the higher moors. Such areas are almost always archaeologically sterile, except for trackways, peat cutting and occasional boundaries that have been marked out. What lies beneath the peat is unknown. But there are extensive tracts of Y Berwyn and the Elan Valley amongst others where prehistoric archaeology may be well hidden beneath peat.

Part II: The Results

Site numbers

In coarse terms the number of sites known (or more correctly the number of site records generated) in the upland areas of Clwyd and Powys that have been the subject of fieldwork programmes between 1989 and 1999 has risen nearly sixfold. Overall 392 sites were registered in the SMR before the commencement of the projects and as a result of fieldwork an additional 2385 records have been added, an average of 82 new sites per project. Maps distinguishing previously known and newly discovered sites are provided for a sample of the areas worked – the Black Mountains I, the Black Mountains II, Carno-Dwyrhiw, the Elan Valley, Mynydd Hiraethog and the overlapping Pentrefoelas windfarm, Mynydd y Ffynnon II, Radnor Forest, the Radnorshire Commons, the Radnorshire Hills, Ruabon Mountain, Trwm y Fawnog (Figs 5 - 15). On each plan the known sites are distinguished by triangles while the newly identified sites are shown as solid circles.

Gross numbers vary from the truly exceptional such as the second Black Mountains Project where large numbers of quarries and trackways produced an amazing total of over 400 records, 58 of them already known (Hankinson *et al* 1998a), to the small Pen y Gwely and Mynydd Llanelidan windfarms with only five sites each (Hankinson 1994; Owen 1992b). Indeed, most of the large Cadw and RCAHMW-sponsored surveys have produced in excess of 100 new sites, the exceptions being Mynydd y Ffynnon in 1996 and Radnor Forest in 1992 (Fig 16).

A better guide to site recovery is probably the figure of new sites as a percentage of the total. Six areas had previously no recorded archaeology in them so that the percentage figure was 100. But to an extent it is a function of the relatively small areas involved, for five of the six are windfarm sites where the number of new sites, too, was small. The sixth site - Mynydd y Ffynnon I - was larger, and 29 new sites were recorded, but it is no more than a coincidence that this area too is now being promoted for a windfarm. Most of the large Cadw and RCAHMW-sponsored surveys have figures of between 80% and 94% for new sites as a percentage of the total. But Mynydd Hiraethog is exceptional with a figure of 99.4%: here only one site of the 162 recorded was previously known, and this pattern of high return is reinforced by the later work on the Pentrefoelas windfarm which whilst encompassing some of the same area, extended beyond it: the previously unexamined area of the windfarm yielded 101 new sites out of a total of 105.

A further means of examining site numbers is by comparing the number of records generated per square kilometre (Fig 17 and Table 3). The range is significant. At the lower end of the scale a number of surveys have uncovered only 2.5 to 3.6 sites per square kilometre. Some of these are again the small windfarms where figures are almost certainly skewed by the extremely limited amount of ground covered. This is clearly the case with Bailey Hill near Powys' eastern border where the recovery rate was only 2.7 and possibly Y Foel with 2.5. Other factors, however, may account for the rate of 3.6 from the Marcheini, Llidiartywaun and Mynydd Nantcarfan windfarms while Radnor Forest with only 3.1 is also worth remarking on at this stage (see below). The mean for site recovery per square kilometre is 11.75, so the surveys of Mynydd y Hiraethog and Trwm y Fawnog (Vyrnwy) are typical. Much higher is the Black Mountains II survey, already noted above, with a recovery rate of 34.6, and the Radnorshire Commons survey which was only completed in March 1999 with a rate of 23.1. The latter with no more than 15% of the recorded total being quarries, reveals considerable tracts of medieval and post-medieval farming activity. Highest of all, with a rate of 44.6 sites per square kilometre, is Pennant in Llandrillo, a small but archaeologically rich and diverse spur on the west side of the Berwyn Mountains, which was specifically targeted for fieldwork in 1996 in the knowledge that it would be rewarding.

Prehistory

Of the periods which are likely to be represented in the archaeological record, the prehistoric era is the one where fieldwork surveys will probably have the least impact. Realistically the remains are likely to be more fugitive and probably more dispersed; they are also likely to have been erased from

the landscape by subsequent activity, especially in favoured locations. Another factor must also be taken into account: there is a long antiquarian tradition of searching for and identifying prehistoric cairns and cognate sites, many of which occupy visually prominent locations such as ridges and hill crests, and this has tended to introduce a bias to many an upland record. For the recent North Radnorshire Commons survey, for instance, no less than 13 prehistoric cairns and barrows were already on the record out of a known site total of 20 and the survey produced only one further example (Hankinson 1999); the effect of earlier and potentially prehistoric-oriented fieldwork on the record can be established by comparing the bar graphs for this area in Figs 16 and 19.

There is a problem of attribution here, and it is a significant factor in any analysis yet one that is seemingly often overlooked. The difficulty of attributing clear-cut chronologies to often morphologically indistinct stone or earthwork features should not underestimated. Where a cairn has the edge stones of a cist protruding from its surface or kerb stones supporting and defining its perimeter there can be little doubt as to its nature (e.g. cairns on the Pennant spur, Y Berwyn: Fig 18). But where, and this occurs much more commonly, there is only an amorphous mound of stone lacking any diagnostic features, an assessment of date may rely on a range of variables – vegetation encroachment, associations with more diagnostic features or the lack of them, and topographic location – most of which are ambiguous guides. Clearance cairns and burial cairns are effectively part of a continuum, and indeed the same cairn might over time serve both functions, one major difference being that the former are still being created today, whilst the latter usually are not. And there will always be anomalies which require elucidation. The discovery of a close-set group of small almost square cairns on the upland edge at Marcheini presented a perplexing problem until a chance remark from a local landowner revealed that this was where the local farm dogs were buried.

Standing stones are equally easy to mis-attribute, unless they are of megalithic proportions. Stones can be set on edge to create rubbing points for stock, and it is likely that our records contain more than one 'standing stone' which has been erected only in the last hundred years. Even cists are not immune from the problems of mis-attribution. What appeared to be a perfectly acceptable cist showing through the turf of Banc Dolhelfa (Marcheini) was subsequently reported (at second hand) to be the packing for a large post erected within living memory.

This is not to underplay the importance or interest of the prehistoric sites that have been identified over the last ten years. Fig 19 and Table 3 reveals that there is no consistent pattern to the recovery of new data. In some search areas such as the North Radnorshire commons virtually nothing new was identified, while in others such as the Black Mountains the majority of sites had already been recorded though new sites did come to light. The reverse is true in other areas such as on Y Berwyn and Mynydd Hiraethog/Pentrefoelas where new prehistoric sites significantly outnumbered known examples. Overall, there is considerable variation, both in gross recovery and in the relative percentages of known to new sites.

These rapid field surveys do serve to correct inaccuracies and inconsistencies in the existing record, and aerial photography frequently has a useful role to play in this re-assessment of earlier data. On Abergwesyn Common the cairns of Carnau Cefn-y-fordd have been long recognised and new sites were added to the group during fieldwork in the 1970s. Yet the Elan Valley survey (Silvester 1994b) turned up several additional small cairns, including one that was a satellite of another much larger known example, and several others were found to have been wrongly located and mis-referenced. On the north Radnorshire commons, four known sites had to be discounted: three were re-assessed as natural features, the fourth made two appearances in the SMR at different locations. And in the first large-scale study, of the Carno/Dwyrhiw area, a cairn on Twmpath Melyn (PRN 6622) recorded on the first edition of the Ordnance Survey map in the 19thC but subsequently unlocated by both the RCAHMW in 1911 and by the Ordnance Survey in 1977, was rediscovered in 1989.

While from the last ten years of field survey we cannot claim any major new ritual sites such as stone circles or stone rows (though there are small kerb circles on Mynydd Hiraethog and in Carno/Dwyrhiw), there have, without doubt, been some significant discoveries. Notable is the chambered cairn (PRN 7820; Fig 20) found above Lake Vyrnwy during the Trwm-y-Fawnog survey which had been left untouched during improvements to enclosed pasture by the landowner who thought it might be something interesting (Silvester 1994a). On a more extensive scale the discoveries on the Pennant spur on the western edge of Y Berwyn merit attention because of the level of activity that is displayed there, though there is a suspicion that what is patently unusual for Denbighshire is perhaps more commonplace in Gwynedd and this of course is an area that was

transferred from Merionydd in 1974 (Silvester 1996). The ridge sports a prehistoric field system of wandering walls accompanied by numerous clearance cairns, a large round hut and one small hut a distance away. There is also an exceptionally fine triple ring cairn, another cairn (or perhaps a further round hut?) overlain by a circular sheep fold, and several other cairns set with obvious cists (Fig 21). That both the Vyrnwy and Pennant sites were immediately scheduled by Cadw reinforces their significance.

Relatively large number of new cairns that have been identified from upland survey over the last decade. In addition, most of the large-scale surveys - Trwm y Fawnog and the Vyrnwy Uplands, Mynydd y Ffynnon II, Ruabon Mountain, Mynydd Hiraethog, Abergwesyn Common and the Elan Valley, the Radnorshire Hills and the Berwyn Transect - and some of the smaller ones - Carno (Trannon), Y Foel and Marcheini - have all produced previously unrecorded examples of ring and kerb cairns, many of them worthy of scheduled status. Cists usually with mound remnants occur as well, and Hiraethog had its own tradition of standing stones protruding from cairns - while these might be considered to reflect clearance, one was a distinctive ring cairn. What is perhaps more significant is that methodical surveys of the kind considered in this report will identify cairns that have previously been missed because they were not in the more obvious or prominent locations. Redressing the imbalance is important here and the full picture rather than a partial one gained through sporadic fieldwork should be useful in achieving a better appreciation of the distribution of upland burial in the prehistoric era.

A rare cairnfield was recognised during the Mynydd y Ffynnon survey, seven small cairns spread over an area no more than 30m across and presumed to be prehistoric even though some modern stone clearance had occurred (PRN 38341; Silvester 1997a, 5.2). Something similar was found on Mynydd Hiraethog where at least 20 mounds were noted though it is not clear whether these had a burial or a clearance origin (PRN 105708: Hankinson 1995b).

Numerous standing stones have been recorded, over one hundred in all. But how many of these are prehistoric artefacts it is impossible to determine. Occasional ones are beyond doubt such as the well-known stone, Maen Gwynedd, placed where Ffordd Gamelin traverses the crest of the Berwyn ridge. But many others are considerably smaller and the possibility of confusion with much later boundary stones, with rubbing stones erected by farmers for their stock, and even with prominent natural rocks is extremely high. A stone set into a medieval field bank in the Cefn Penagored field system (PRN 26537; Silvester 1995b, 3) on the western edge of Y Berwyn epitomises what is largely an irresolvable problem: at 1.45m high its integrity as a deliberately erected feature is not in doubt and in any other location it would be placed in a prehistoric context yet its position, unless coincidental, implies a much later date and a purely practical function.

A 'stone setting' has been defined as 'an arrangement of upright stones that is not readily identifiable as either a stone row or stone circle or any other well-defined type of megalithic monument' (CPAT 1998, 19), and such features though not common nevertheless have been recorded on a regular basis. The Bryn yr Aran stone setting on Trannon Moor has four upright stones – the fourth stone identified only recently – a few metres apart on a small knoll projecting into a valley (PRN 4875; Jones and Owen 1999, 13), while on Llidartywaun the Faullt stones are three erect stones forming a roughly triangular setting (PRN 6676).

Earlier fieldwork in Clwyd and Powys has failed to locate many sites comparable with the great settlement and burial complexes known on the moors of south-west England or even their counterparts in north-west Wales. There are of course exceptions. John Manley's work (1990) at Ffridd Brynhelen and Mynydd Poeth on the eastern side of the Denbighshire Moors does demonstrate the presence of such sites but they are rare, and new examples are likely to be encountered only by chance. Pennant on Y Berwyn (see above) is perhaps the only comparable example. Specific identification of domestic sites of prehistoric origin is, however, a fundamental difficulty throughout the region, and can be put into perspective by the fact that the Gwynedd hut circle settlement survey identified more than 1850 round huts (Smith 1998, table 13), while a similar survey for Radnorshire and Montgomeryshire identified only 23 in the former and 33 in the latter, some of which have subsequently been ruled out (Silvester 1999a, 4).

A not insignificant number of the known occupation sites have come from the upland surveys discussed here. Given that round huts do appear at over 500m OD (e.g. the Fuallt settlement near Llandinam: PRN 4163), the general dearth of such sites is not solely a question of altitude; rather it

must be due to a lack of durability in the raw materials that were utilised for building. The only part of Clwyd and Powys where hut groups are common is the Brecon Beacons where limestone can be utilised. Elsewhere the round huts that have been identified appear as solitary examples, not as part of complexes, although they tend to become more prevalent in the west of the two counties. The known examples are important for demonstrating a prehistoric presence in the hills, and act as a spur to resolve a conundrum which has been apparent for a considerable time.

Some of the newly discovered round huts are of particular interest. Above Craig y Llysiau in the Elan Valley a sub-circular enclosure is sandwiched between two round huts, and there is a third hut nearby (Silvester 1994b, 4). Other groups of huts have been recorded on Mynydd Hiraethog during the Pentrefoelas windfarm survey where three circular gullies about 8m in diameter were identified on a spur near the Alwen reservoir (PRNs 105743-105745; Hankinson 1995b, 6.2), and in the Black Mountains where there were three ring banks in a line which may or may not be huts (PRNs 39564, 39677 and 39678; Hankinson *et al* 1998a, 5). Individual huts or the platforms that supported such huts occur only sporadically; two platforms were recorded during the Radnorshire Hills survey and Mynydd Nantcarfan produced a round hut with a possible enclosure or pound (PRN 16606).

Occasionally traces of field systems have been recognised, usually short stretches of interrupted walling. The date at which these functioned is impossible to ascertain, though a prehistoric (or perhaps Romano-British) date seems most plausible. Several such putative prehistoric field walls were recognised on the limestone of Ruabon Mountain and Minera Mountain (Silvester and Hankinson 1995a, 5), there were other tantalising fragments on the western side of Y Berwyn though nothing comparable to Pennant (Fig 21).

Earthworks of later prehistoric date do not feature strongly in the records. In the Black Mountains one enclosure, Ty Helyg (PRN 677), which had been dismissed by the Ordnance Survey as quarrying activity was reinstated as a result of fieldwork combined with aerial mapping (Hankinson *et al* 1998a, 4.5.1). In the Berwyn Transect recent pasture improvement had removed a sub-circular enclosure (PRN 105088), visible on aerial photography, leaving only a natural-looking terrace.

The Roman Period

The upland surveys considered here have had little impact on our understanding of Wales during the Roman period. Where our survey data have been broken down by period as in the Black Mountains and Carno/Dwyrhiw studies, there is inevitably an empty field against Roman. Yet it is in the Carno/Dwyrhiw area that the strongest evidence of Roman activity appears, not however from fieldwork but from the pollen analysis at Carneddau which lay at the heart of the fieldwork zone. Radiocarbon-dated peat profiles indicated that 'the most extensive episode of forest destruction occurred in the Roman-British period .... [with] a mean calibrated age for the clearance episode of between Cal AD 30 and Cal AD 230' (Walker 1993, 181). It need hardly be stressed that the ground evidence for activity that seems to have been pastoral rather than agricultural is non-existent (though excavation also produced a Late Iron Age glass bead). But Carneddau lies at around 400m OD with a north-east facing aspect and this opens up considerable possibilities for Roman activity elsewhere in the hills.

Positive attributions to the Roman era are limited to two Roman roads. Initial optimism about that on Trannon Moor (Powys) which had been recognised back in 1973 now looks to be misplaced (Silvester 1995a), the road seemingly a 19th-century construction (Thomas in Hankinson *et al* 1998b, 4.3). The second example, on Mynydd Hiraethog (PRN 105756) has a more tentative attribution: its appearance incorporating side ditches is suggestive, but early cartography implies that it was in use up to the beginning of the 19th century, and further analysis is without doubt necessary.

The Medieval and Post-Medieval Era

Without doubt it is for the period spanning the last 800-1000 years that the upland survey has made the greatest impact on our appreciation and understanding of man's use of the uplands of Clwyd and

Powys. There are, however, problems particularly for the post-medieval era, and some of these were signalled in the Berwyn transect report of 1992.

> 'There is an inviolate assumption in fieldwork that any feature created or modified during the prehistoric era should automatically find a slot in the relevant SMR. The same is true in the main for features of medieval date, although generally there are noticeable omissions, namely field systems and their integral parts that have continued in use into the modern era. [For these] inclusion in the record tends to be selective with the emphasis on abandoned or atypical land division systems.
>
> Moving into the post-medieval centuries creates fundamental problems of data collection largely unresolved at present. There is a considerably wider range of features to be recorded, a function in part of their more recent origin and hence their survival, in part because of increasing mechanisation. Secondly and not surprisingly, a much greater proportion of these features are still in active use, which in turn generates problems of recognition and description. Thirdly there is the perennial query as to the cut-off date for recording, whether 1945, 1900, 1815, or whatever. And finally and related to the previous aspects is the problem of what is or is not so ephemeral as to warrant exclusion from the record. This last point is of more than academic exercise for it is a factor that taxes the fieldworker on a daily basis. As examples the Berwyn produced: rubbing stones (recorded); early 20th-century water-wheels providing power for farm machinery (recorded); small circular stone drinking troughs primarily used by pigs (not recorded), locally worked stone quarries (not recorded); and large shale slabs with five or six drilled holes used in fencing fields (recorded only initially).
>
> ..Basic problems exist in the recording of post-medieval landscapes, problems common to upland and lowland alike. Twenty years ago these problems were a minor concern, largely because, with a few notable exceptions, there was a lack of concern with the rural archaeology of the post-medieval era. That situation has now changed and it has brought a new set of problems that require resolution' (Silvester 1992b, 9).

It is frequently impossible on the basis of the current evidence to sub-divide the era and allocate discoveries specifically to the medieval, sub-medieval, post-medieval or early modern periods. This of course effects a contrast with the analysis of upstanding buildings for which a tighter chronology has evolved. Settlement and activity as evidenced in the archaeological record in the uplands reflects a continuum but with an inbuilt fluidity of expansion and contraction, the nature of which is gradually being recognised through both historical and archaeological studies. Research in other parts of Britain has demonstrated the spread of settlement into the hills in the 12th and 13th centuries based on a growing population, a phase which terminated in the 14th century in the face of climatic deterioration and plague. A further phase of expansion is evidenced in the 16th century (Thomas 1964), but whether this continued until the end of the 19th century as continuous or intermittent growth remains to be established. There is, too, the backdrop of seasonal use of the moorlands during the historic period, but if anything its patterns and physical remnants are even harder to tie down than the permanent settlement referred to above, not least because there is very little evidence to show when those involved in seasonal movement began to build *hafodydd* or the like which are in practical terms the only physical manifestations of this seasonal activity.

There can be no doubt that the archaeological remains that have been recorded in the uplands reflect all of these settlement episodes, but we are only gradually beginning to comprehend the various morphologies that might be relevant to the different phases. The importance of the upland surveys lies in the provision of raw data for such assessments.

It is for the historic period that the greatest quantity of data has been assembled from fieldwork. In gross terms 123 site records (78% of the total) from Carno/Drywhiw were from this period; and from the Black Mountains II survey 280 records (69%). These figures which relate to a relatively wide range of activities over and above settlement, can be broadly replicated in virtually every survey undertaken by CPAT over the last ten years with the exception of one or two small windfarm programmes. In the context of this report they are indicative of a general trend which does not need to be laboured.

A clearer picture of the value of the upland surveys can be gleaned by examining various elements of land use over the last one thousand years.

Settlement. The quantitative expansion of settlement evidence is shown in Fig 22 and Table 4. As can be seen from the comparative figures which refer only to the actual buildings or their locations rather than farm complexes as a whole, little has been recorded in the past, whether it be an isolated platform or a 19th-century farmstead complete with ancillary structures and enclosures which is clearly shown on the Tithe or Ordnance Survey map but has never reached the SMR. It is estimated that with only 31 sites already recorded there has been more than an elevenfold increase to over 350, and fieldwork consistently demonstrates that there are the remains of seasonal or permanent farming in all but the most remote landscape.

Platforms, often referred to as platform houses in earlier literature but a term eschewed here, are now seen to be abundant throughout central Powys (North Radnorshire Hills and Commons), appear sporadically in north-western Powys around Lake Vyrnwy and extend into south-western Denbighshire (the western edge of the Berwyn). They may appear in isolation or in contiguous pairs or, more rarely, in larger groupings suggestive of some nucleation as on the northern side of Lake Vyrnwy where as many as ten platforms together with associated fields point to an extension of the now lost village of Llanwddyn (Silvester and Hankinson 1997, 4.5.2), and on occasions distinct clusters may appear as with the dozen or so sites on the north-eastern periphery of Radnor Forest (Owen 1992a, 5). In other areas to the north and east of the zone referred to above they appear sporadically if at all and often in atypical forms. Thus in the survey areas of Carno-Dwyrhiw, Ruabon Mountain and Mynydd Hiraethog they are barely represented as a settlement form. This element of settlement morphology is currently being studied as part of the Cadw-funded Deserted Rural Settlement (DRS) survey, and the uplands projects have provided invaluable data for areas such as Radnorshire. The medieval dating which Cyril and Aileen Fox gave to the platform houses that they examined in Glamorganshire many years ago seems to be generally borne out by the evidence collected from the Clwyd and Powys uplands over the last ten years though further excavation is required to advance both the chronology and the form of the structures that occupied the platforms.

Long huts, the term used by the DRS survey to encompass a range of rectangular buildings including site which might otherwise be classed as traditional longhouses, are also very much in evidence in the upland record. *Hafodydd* which are usually perceived to be isolated sites though sometimes with associated enclosures, have been recorded regularly in the wider uplands expanses. Nine individual sites, for instance, were found in the Elan Valley though there were also two complexes where five or more *hafodydd* were associated with other features. In the Ceredigion portion of Mynydd y Ffynnon, nine *hafodydd* were encountered in valleys running off the southern side of the massif (Sambrook and Silvester 1997a, 4.5) and other together with platforms were recorded in subsequent work along the north edge of the Afon Ystwyth (Silvester 1997a, 5.3). Ruabon Mountain and Trwm y Fawnog turned up numbers of long huts which are thought to have been used seasonally. Some of the smaller fieldwork programmes – Y Foel and Mynydd Nantcarfan – have identified *hafodydd* and this tends to reinforce the hypothesis that it is in the extensive and more remote uplands in the westerly (and probably the southern) part of the region that seasonal settlements are encountered while in the more easterly uplands in Radnorshire they are generally uncommon. Even in those areas where they are common their distribution is uneven – some valleys may contain several examples, others none at all, but this can only be demonstrated by more widescale data recovery. Other areas and Ffridd Camen, an interfluvial spur on the western edge of Y Berwyn, is a case in point contain both typically small long huts with appended enclosures which are classed as *hafodydd* and larger long huts associated with cultivation remains which must be assumed to be permanent settlement sites. The simultaneous use of the same relatively limited tract of peripheral upland by two different farming regimes is extremely unlikely, and circumstantial evidence favours a termination of permanent settlement on Ffridd Camen in the 14th century, the subsequent use of the land for seasonal grazing, and a return (on an adjacent spur) to permanent farming in 17th or 18th century, though this farmstead too has been long abandoned (Silvester: forthcoming). The ebb and flow of settlement in the uplands is more readily recognisable in some areas than others, and it is places such as this part of Y Berwyn where an appreciation of the dynamics of settlement expansion and contraction is most likely to be developed.

While many long huts and platforms appear to exist in isolation or have only enclosures appended to them, others have been identified in association with tracks, pounds and enclosures, forming steadings which may be the precursors of the later cottages and farmsteads on the waste (see below).

A steady trickle of such sites has been identified during the Radnorshire surveys, on Hiraethog and probably elsewhere. A Radnorshire example is included here by way of example (Fig 23).

The remains of medieval cultivation at high altitude, in the form of ridging or strip fields, has been one of the more interesting discoveries on the moorlands of south-west England, and upland work in Clwyd and Powys is beginning to demonstrate a similar though less prevalent occurrence of high-level arable in parts of the region. Chris Musson's aerial photography first drew attention to relict strip fields on the western edge of Y Berwyn in 1982 and this was followed up by detailed survey in the early 1990s (Silvester 1991b; 1995b). Similar if less extensive traces of cultivation are now being recognised on some of the Radnorshire commons, usually in association with platforms and long huts, and CPAT has an on-going commitment to their study. But the fragile nature of this sort of archaeological evidence is revealed by a settlement found on the site of the proposed Llidiartywaun windfarm in 1991 and demonstrates the need for as full a record as possible at the time of discovery: the Waun Lluest Owain settlement comprises a long hut with an appended round hut which may or may not be prehistoric, and was said when the initial record was made to have an associated field system. A rapid record of the site included a sketch plan of the huts but nothing on the field system. Since the construction of the windfarm there has been further improvement of the land on the ridge and virtually all traces of the system have been erased so that little that is useful can be said about it.

Farmsteads and their holdings established on the waste or on the edge of improved land over the last two hundred to three hundred years or so have received little attention in the past, yet they are probably one of the most common phenomena on some uplands with large numbers dotted around the periphery, many of them discernible on early maps. The Carno/Dwyrhiw survey produced sixteen such sites on enclosed land, six of which were still occupied, the rest in ruins; none had been previously recorded. Yet there is much to learn about their form and economy, not least because in many cases there are still standing buildings, but the accurate mapping of their distribution is a necessary first step to appreciating one of the more significant facets of upland use. Ancillary features are significant too: barns, shelters, enclosures and the like. At the northern end of the Carno/Dwyrhiw area several of the farms had associated stone-built root stores; one of these, adjacent to the ruins of Bon y maen farmstead, is probably the first rootstore to be scheduled in its own right.

Landholding and land use. Trackways are, not surprisingly, numerous. Some are a function of the natural topography, a sharp ascent leading to the creation of braided trackways, diverging and joining according to the condition of the terrain. Narrow tracks for sleds running downhill from the peat cuttings on the flat hill tops have been recorded above the Elan Valley, on Ruabon Mountain, and on the Pennant ridge of Y Berwyn. Holloways are a natural result of the continued use of one particular line for travel. Some, however, may be of some antiquity. The track known as Bwlch y Garnedd on the southern side of Mynydd Hiraethog has small shelters along its line; though probably used by peat cutters, its course to the south of the modern road suggests an earlier way. Ffordd Gefn, north of Lake Vyrnwy, follows a watershed between the Vyrnwy and Tanat valleys. Again it has been used by peat cutters but prehistoric cairns close to its course might herald its origins at a much earlier date.

Structures associated with flock control are common on some uplands. Sheepfolds and pens take a variety of forms, some considerably better constructed than others. Those of stone have been recorded, the more modern type of posts and wire have generally not. Multi-compartment stone folds are common though nothing has been encountered to compare with those in Gwynedd (RCAHMW 1956, lxxvii). Those close to streams frequently display feeder walls and dipping pools. Shelter walls in exposed locations are also more prevalent in some areas than others. On some of the northern moors and particularly Mynydd Hiraethog, they come in a variety of forms with X, T, L, Y and Z-shaped examples known. Dew ponds for stock watering were a particular feature on Llanbedr and adjacent hills in south Radnorshire, though to what extent these pools were artificially contrived remains unclear; two seem to have been artificially enlarged but there were many others which appeared to be wholly natural (Hankinson and Silvester 1997, 5.4.2).

A warren distinguished by its pillow mounds was encountered in the first survey undertaken, in Carno/Dwyrhiw, and subsequently several mounds threatened by pasture improvement were excavated (Silvester 1995c). A further group were recorded on Reeves Hill, though on the Herefordshire side of the border (Owen 1994a). Otherwise only occasional examples have been recognised - one for instance on the north Radnorshire Commons survey in a region where aerial photography implies that isolated groups of such mounds are prevalent.

Boundary earthworks, stones and markers occur regularly in the record. The boundaries of some landholdings particularly where they separate the enclosed land from the open moor are marked by substantial banks and ditches which elsewhere have been termed 'moor banks'. Large earthworks of this sort have been recorded on the eastern side of Y Berwyn and around common land in southern Powys. Boundary stones may be no more than rough blocks of stone but some of the larger estates erected fashioned slabs, occasionally incised with the landowner's initials. Notable examples have been recorded on Y Berwyn where on opposing faces stones have W W W for Watkin Williams Wynn and R M for Richard Middleton. The Radnorshire Hills and the Black Mountains surveys yielded a number of dated stones, the earliest, on the former, inscribed Glase (for Glasbury) and the date 1792, while those in the latter revealed a range of names and dates from the 19th century. Eighteen stones inscribed P U were noted on Ruabon Mountain, and strings of markers such as these are not uncommon.

Industry. Different upland areas were exploited in different ways, according to their underlying geology and often their Quarternary deposits. Limekilns (on Ruabon Mountain and in the Black Mountains), mining adits (Y Foel), shafts (Ruabon Mountain) and trials are not uncommon and more extensive mine workings were noted in the Elan Valley and elsewhere, though these were generally already recorded.

Quarries range from the small surface disturbances created by individuals or groups of farmers which are both widespread and common, to large extractions which may have been commercial concerns. The nature of the underlying rock and its proximity to the surface dictated the location of the quarries whatever their form. Where they have been recorded they frequently constitute a significant and often the major element in the site list (Table 4). The first Black Mountains survey recorded 93 quarries, fractionally under 30% of the sites identified. Access tracks leading up onto the Radnorshire Commons are almost invariably accompanied by surface quarries just inside the commons boundary. On the other hand a favoured rock outcrop might be exploited by people over a considerable area. A surface quarry producing slates on the western edge of the Berwyn was linked by a worn trackway to Llandrillo and its farming settlements some 3km away in the valley below. Some slates were used to top a stone wall through which the track passed, but the majority of slates were certainly taken down to the houses in the valley. And the same must be true of the quarries on Whimble, a prominent hill reaching to nearly 600m OD, 2km to the north of the town of New Radnor; its slates were certainly used in the town.

Leats carried water to farms, to mills and to industrial workings from springs and streams higher up in the hills, often to buildings which lay outside the search zone. Twenty-seven leats, either complete or in part, were recorded in the recent Radnorshire Commons survey, though this figure is exceptional. Reservoirs and dams have been recorded, the former usually large and associated with industrial workings as with Llyn y Mynydd north of Lake Vyrnwy which supplied the Llangynog lead mines.

Peat cutting was widespread, and in Carno community and in the Elan Valley was still practiced until recently. Very few surveys over the past ten years have not revealed indications of turbaries, and some of these are on a massive scale. Trannon Moor, Carno is one such area (Fig. 3). Though the long, usually straight, cuts and intervening baulks of uncut peat are often discernible on the ground, they show more readily from the air. It is only an assumption, but probably a reasonable one, that where turbaries are visible they were exploited over the last couple of hundred years; earlier cuttings are likely to have had their contours smoothed by renewed peat growth.

Features associated with turbaries include mounds of peat that were never carted away, occasional huts which provided shelter, cairns of stones cleared from turbaries and, displaying a more localised distribution, peat platforms on which peat was stacked to dry. These are prevalent in Montgomeryshire – one was excavated at Carneddau – and the northern part of Radnorshire, but are uncommon elsewhere, except on the Denbigh Moors (Mynydd Hiraethog) where analogous features were encountered (Hankinson 1995b). Patterns of peat exploitation have not been investigated, but the scale of what was a major subsistence industry could reasonably be determined from existing evidence.

Other subsistence practices are likely to leave few if any surface traces, though the exploitation of bracken, gorse and other upland vegetation is well documented. In passing we may note that bracken is still harvested for animal bedding on a few of the Radnorshire Commons.

Recreation, Leisure and Belief. There can be little doubt that over the centuries the uplands have been used for recreational purposes. Hunting with hounds leaves few traces, shooting on the other hand has left its mark on the landscape in the form of shooting butts or hides. Regular lines of butts as well as isolated examples have been recorded on the Radnorshire Commons, on Y Berwyn and most noticeably on Ruabon Mountain and Mynydd Hiraethog (Table 4). Lines of butts are one of the more common features depicted on earlier Ordnance Survey maps, and in some areas they continue to be built today. It is also evident that various designs of butts have evolved in different areas or on different estates, so that stone-lined depressions appear on Ruabon Mountain, stone-faced wedges on the west side of Y Berwyn, and no less than seven different types of hide where found on Mynydd Hiraethog (Owen and Silvester 1993, 5).

Some modern landscape features, some out of the ordinary, have also been recorded over the last ten years. The farm cemetery on Marcheini has already been mentioned, and in a similar vein there is a modern stone circle (PRN 12813) with carvings on its uprights near the summit of Y Drain in the north Radnorshire commons (Hankinson and Thomas 1999, 6.6.2), and the Ffridd Cynon-isaf obelisk on Y Berwyn (PRN 38439), erected for the silver jubilee of the Queen in 1977.

Undated Archaeology

Many features inevitably remain unattributed chronologically. Such are the numerous small shelters of earth or stone found in the uplands, eleven of which for instance were noted during the Pentrefoelas windfarm survey (Hankinson 1995b). Occasional ones may be broadly dated by association, and of two excavated on Carneddau (Montgomeryshire), one produced no dating evidence, the other 19th-century material. It is only a conjecture that the majority are post-medieval.

Among the more enigmatic of upland monuments are the linear earthworks or cross dykes which have been encountered in a number of surveys though never more than a couple of examples in any one area. Running across spurs or ridges, and of varying length, they are variously attributed to the later prehistoric era, usually the Bronze Age, conventionally in the regional SMR to the early medieval (i.e pre-Norman) period, or to the medieval centuries. In the absence of dating material from excavation, in itself an unlikely occurrence except in the most fortuitous of situations (cf the dearth of material from David Hill's ongoing work on Offa's Dyke), or organic material for radiocarbon dating, an association with a more reliably attributed monument is the best one can hope for, and again such associations are rare.

Three dykes, seemingly part of the same system, cut across a broad shelf of ground on Ruabon Mountain, the only feature 'inside' them being a *hafod*-type structure. Two, one of them already known, were identified on the Llidiartywaun windfarm, and one on the Y Foel windfarm. A series of at least four on the heights of Radnor Forest were tentatively interpreted as the boundary of the medieval forest (Owen 1992a, 6), but this has yet to be convincingly demonstrated. Several have been recognised on other Radnorshire Commons. Listing them in this fashion, however, goes little way to clarifying their date and function, and it is evident that only a more thorough analysis of all the known upland examples in their setting will facilitate an understanding.

Other enigmatic monuments include a small rectangular platform, slightly lower than the surrounding ground level and embraced by a continuous shallow ditch. As yet no one has been able to attribute a function to this earthwork on the northern slopes above Lake Vyrnwy.

Site re-use

A phenomenon recognised at several places on Y Berwyn (e.g. PRNs 105768) but also elsewhere (e.g. in the Elan Valley: PRN 16549) is the utilisation of an early cairn by a more recent sheepfold,

hardly unexpected as the former would offer a convenient source of material. On Trwm y Fawnog a multi-cellular sheepfold at the head of a watercourse bears the name Hafoty Arllen Fawr (PRN 7853) and presumably overlies the site of an earlier seasonal settlement of which there others in the vicinity. Similarly on the eastern flank of Y Berwyn a sheepfold superseded a farmstead named Hafotty Blaen-y-cwm and the name itself signals an earlier, seasonal settlement (Silvester 1992b, 5), and on the western side of the mountain ridge there are at least two folds set on the remnants of cairns. On Cyrn-y-Brain (Ruabon Mountain) are the ruins of Sir Watkin's Tower, a folly resting on top of a prehistoric cairn. Immediately to the south is what the first edition of the Ordnance Survey map identified as a sheepfold, but the mortared and well-constructed walls point perhaps to a lodge or summer house - this too seems to have been erected on an earlier cairn.

Land Pressures and Management

It has become inceasingly apparent over the last ten years that in practice it is impossible to determine where land will be enclosed or improved unless there are statutory controls or regulations in place which necessitate prior consultation between the landowner and non-government organisations or government departments. Exceptionally, farmers who are particularly interested in the historic environment and who have been made aware of significant archaeology on their land may decide to leave the relevant portion of a field untouched when the pasture is next improved. But this is a voluntary decision on their part, it is as likely to take place without any prompting from archaeologists (as was the case with the Trwm y Fawnog chambered cairn), it is not practicable for archaeologists to maintain regular contact with landowners over the long periods of time that are involved in the improvement cycle, and a change in landownership whether within the family or as a result of sale or changing tenancy will almost certainly negate any informal arrangements that had previously been made.

With the demise of EU grants for opening up the uplands there has been a slow down in the amount of hill land that is enclosed and improved, and from an archaeological point of view this is welcome. But once ground has been improved, it needs to be maintained. Ploughing and re-seeding may not be necessary for another fifteen to twenty years but ultimately it will happen. There is, however, no systematic way of monitoring such activity, and no control over it. During the Carno/Dwyrhiw survey in 1989, only two areas of heather upland, both enclosed, were identified. Subsequently, one of these was ploughed up and re-seeded, leaving only the steepest slopes with their 'natural' vegetation. But this improvement of the landscape was only identified because the land in question lies beside a public road. In most upland areas there is little opportunity for follow-up visits.

In contrast, developments in the uplands requiring planning permission, whether accompanied by an environmental statement or not, afford some measure of control over the potential impact on the historic landscape. As far as can be established CPAT's involvement in the large number of windfarm programmes in Clwyd and Powys has been effective in mitigating the impact on the archaeological resource on every programme that has been completed.

Common land probably offers the best chance for the preservation of the historic landscape, passive protection in that the regulation of the commons allows very little disturbance. Yet even on the commons there can be specific threats from activities associated with the commoners' rights, and also from 'recreational use' in four-wheel drive vehicles and the like. Areas designated as Sites of Special Scientific Interest (SSSI) should also afford protection, albeit indirectly in that the *raison d'etre* is biological or geological. That this is not always the case can be seen from the Berwyn SSSI where the re-introduction of heather to areas near Lake Vyrnwy necessitated the scarifying of the ground in advance of re-seeding.

Statutory Protection

It is regrettable that the long-term protection of the archaeological resource can only be assured by statutory protection. There is no other mechanism that is effective as scheduling. CPAT has long recognised this, and in the early years of the fieldwork programme newly identified sites were recommended to Cadw for statutory protection on an *ad hoc* basis. From 1994 with the Elan Valley

survey this became a more regulated procedure, with a list of sites being submitted, and in some instances a follow-up visit to the area with the regional Inspector of Ancient Monuments to consider scheduling options. This approach was particularly successful for the Elan Valley survey where ten sites were scheduled and also on the western edge of Y Berwyn which saw several schedulings, one an area on the Pennant spur which incorporates at least half a dozen monuments. Elsewhere two sites have to date been scheduled near Lake Vyrnwy and one from the Carno-Dwyrhiw study. Recommendations resulting from the more recent field surveys have yet to be assessed by Cadw.

Conclusions

Field survey, over a period of ten years, has significantly enhanced the general picture of upland activity in many areas of Clwyd and Powys, and in some particular aspects has transformed our understanding of how man has utilised the upland environment. CPAT can be justifiably pleased in what has been achieved. It has not only identified whole new sets of sites in places where previously none were known, but it has served as a valuable corrective to the patterns created by previously known archaeology in place for many years. North of Vyrnwy, for instance, the dispersed group of cairns between Carnedd Cerrig and Ffordd Gefn can now be seen as part of a more extensive group of prehistoric funerary sites on the ridge and the spurs that come off it (Silvester 1994c, 5). Of necessity, though, the work has been geared to data collection - the in depth analysis of all this data to enhance understanding of past land use in the uplands has yet to be undertaken.

Each area that has been examined during the last ten years has yielded its own unique set of data, and this, of course, is only to be expected. There are, though, general trends emerging and these will become more evident in the future as further upland surveys are completed in adjacent areas: the prevalence of medieval settlements around the edges of the commons in Radnorshire (and probably Breconshire), the areas of relict medieval cultivation which expanded onto some of the more hospitable uplands, the occurrence of high-quality prehistoric sites in those uplands in western Powys penetrated by sizable river systems as in the Elan and Vyrnwy valleys, and on a more mundane level, the regular appearance of small rabbit warrens in the Radnorshire Hills are examples of these developing concepts.

In some areas, notably around Carneddau (Carno) in northern Powys and in the Brecon Beacons, excavations have provided much further information, and environmental sampling has added an extra dimension to the understanding of the past in these uplands. This report has made no attempt to synthesise the data from excavation and palaeoenvironmental studies, though generally excavations in Clwyd and Powys have been on a limited scale and much remains to be done. Nor has it examined the work that has been undertaken in two other potentially significant research fields, namely historical research and place names.

No attempt has been made here to compare the nature and density of the archaeological resource on the open moorlands with those from the upland margin and the enclosed uplands. CPAT's work on the former has been more extensive, and much of the data considered above derives from such environments. It is apparent, however, from a cursory examination of the site data that though there are some differences in both the nature of the archaeology (e.g. turbaries) and the level of preservation, there is much that is common to both. As much upland that is now enclosed was until recent centuries either open upland or unintensively worked farm land this is hardly surprising. There can be no doubt, however, that in those enclosed and improved areas where fieldwork has been conducted – Carno/Dwyrhiw; the eastern part of the Berwyn transect, and the Vyrnwy estate – the recovery density of sites, and also the level of preservation of those sites is lower than is found on the open moorlands (see Silvester 1992b, 9).

Some upland areas have generated less archaeological records than was initially anticipated and it has become apparent that some upland zones are potentially more productive in terms of the archaeological return than others. With hindsight the nature of the terrain militated against extensive settlement and other activity on the upland moors of Y Foel and Mynydd Nantcarfan. Radnor Forest can also be cited. Medieval and post-medieval settlement was sparse, but here the peculiar historical conditions of the designated forest perhaps influencing the level of activity. The reverse is also true, however, with the returns from fieldwork on the western edge of Berwyn and the north Radnorshire Commons exceeding all expectations. Perhaps rather speculatively, it is possible to identify where

targeted fieldwork might have the greatest impact, either as a result of working in an adjacent upland block or from a more general appreciation of the range of topographical settings that were favoured in upland Clwyd and Powys in past centuries.

There can be no doubt in anyone's mind that upland fieldwork must continue. Both the density and the quality of the archaeology that has been recognised over the last ten years demonstrates the desirability of continuing with this particular method of site identification. Returns, generally, have been high, data for more detailed analysis are regularly recorded, and new sites worthy of statutory protection are frequently identified. It is to be hoped that the Royal Commission's commitment to the Upland Initiative remains firmly in place.

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Tables

Figures

Upland Surveys: Table 1

Ref no	*Name*	*Old county*	*Zone no.*	*Sponsor*	*Area*	*Date*
1	Bailey Hill, Powys	Radnor	5	Windfarm	2.55	1994
2	Berwyn Transect	Denbigh/Merione	10	Cadw	16.62	1991/92
3	Black Mountains I	Brecon	2	RCHAMW	16.97	1996/97
4	Black Mountains II	Brecon	2	RCHAMW	11.72	1997/98
5	Carno (Trannon)	Montgomery	9	Windfarm	5.69	1992
6	Carno - Dwyrhiw	Montgomery	9	Cadw	17.88	1989/90
7	Elan Valley	Brecon	6	Cadw	12.92	1993/94
8	Marcheini	Radnor	8	Windfarm	3.57	1991
9	Mynydd Clogau	Montgomery	9	Windfarm	0.83	1998
10	Mynydd Hiraethog	Denbigh	11	RCAHMW	14.79	1992/93
11	Mynydd Llanelidan	Denbigh	12	Windfarm	0.56	1992
12	Mynydd Nantcarfan	Montgomery	9	Windfarm	3.05	1994
13	Mynydd y Cemmaes	Montgomery	9	Windfarm	0.43	1996
14	Mynydd y Ffynnon I	Montgomery/Card	8	RCAHMW	9.54	1996
15	Mynydd y Ffynnon II	Montgomery/Card	8	RCAHMW	8.60	1997
22	North Radnorshire Commons	Radnor	5	RCAHMW	12.52	1998/99
16	Pale Estate	Merioneth	10	CCW	5.36	1994/95
17	Pen y Gwely	Denbigh	10	Windfarm	0.93	1994
18	Pennant, Llandrillo,	Merioneth	10	Cadw	0.56	1996
19	Penrhyddlan/Llidiartywaun	Montgomery	5	Windfarm	9.37	1991
20	Pentrefoelas	Denbigh	11	Windfarm	13.60	1994
21	Radnor Forest	Radnor	0	Cadw	19.81	1992
23	Radnorshire Hills	Radnor	4	RCAHMW	16.02	1996/97
24	Reeves Hill	Radnor/Hereford	5	Windfarm	1.17	1994
25	Ruabon Mountain	Denbigh	12	RCAHMW	15.19	1994/95
26	Trwm y Fawnog	Montgomery	9	RCAHMW	14.35	1993/94
27	Vyrnwy Estate I	Montgomery	9	Severn Tre	7.69	1996/97
28	Vyrnwy Estate II	Montgomery	9	Severn Tre	4.57	1997/98
29	Y Foel Windfarm	Montgomery	8	Windfarm	3.57	1991

Upland Surveys: Table 2

Date	*Ref no*	*Name*	*Report author*	*Report date*
1989/90	6	Carno - Dwyrhiw	Silvester	1990
1991	29	Y Foel Windfarm	Owen	1991
1991	19	Penrhyddlan/Llidiartywaun	Owen and Silvester	1991
1991	8	Marcheini	Silvester	1991
1991/92	2	Berwyn Transect	Silvester	1992
1992	5	Carno (Trannon)	Owen	1993
1992	11	Mynydd Llanelidan	Owen	1992
1992	21	Radnor Forest	Owen	1992
1992/93	10	Mynydd Hiraethog	Owen and Silvester	1993
1993/94	7	Elan Valley	Silvester	1994
1993/94	26	Trwm y Fawnog	Silvester	1994
1994	17	Pen y Gwely	Hankinson	1994
1994	20	Pentrefoelas	Hankinson	1995
1994	24	Reeves Hill	Owen	1994
1994	1	Bailey Hill, Powys	Owen,	1994
1994	12	Mynydd Nantcarfan	Silvester	1994
1994/95	16	Pale Estate	Silvester and Hankinson	1995
1994/95	25	Ruabon Mountain	Silvester and Hankinson	1995
1996	14	Mynydd y Ffynnon I	Sambrook and Silvester	1997
1996	13	Mynydd y Cemmaes	Hankinson	1996
1996	18	Pennant, Llandrillo,	Silvester	1996
1996/97	3	Black Mountains I	Jones and Dorling	1997
1996/97	23	Radnorshire Hills	Hankinson and Silvester	1997
1996/97	27	Vyrnwy Estate I	Silvester and Hankinson	1997
1997	15	Mynydd y Ffynnon II	Silvester	1997
1997/98	4	Black Mountains II	Hankinson, Jones, Dorling and Thomas	1998
1997/98	28	Vyrnwy Estate II	Hankinson and Silvester	1998
1998	9	Mynydd Clogau	Hankinson	1998
1998/99	22	North Radnorshire Commons	Hankinson and Thomas	1999

Upland Surveys: Table 3

Ref no	*Name*	*Area*	Sites/sqkm	*Known sites*	*New sites*	*Known preh'c*	*New preh'c*
1	Bailey Hill, Powys	2.55	2.7	0	7	0	0
2	Berwyn Transect	16.62	6.7	15	97	4	13
3	Black Mountains I	16.97	18.4	52	260	25	6
4	Black Mountains II	11.72	34.6	58	348	48	16
5	Carno (Trannon)	5.69	6.5	15	22	8	3
6	Carno - Dwyrhiw	17.88	8.8	38	119	3	11
7	Elan Valley	12.92	9.7	2	102	17	19
8	Marcheini	3.57	3.6	0	13	0	7
9	Mynydd Clogau	0.83	18.1	1	14	0	0
10	Mynydd Hiraethog	14.79	11.0	1	161	0	9
11	Mynydd Llanelidan	0.56	9.8	0	5	1	0
12	Mynydd Nantcarfan	3.05	3.6	0	11	0	3
13	Mynydd y Cemmaes	0.43	20.9	1	8	0	4
14	Mynydd y Ffynnon I	9.54	3.0	0	29	0	1
15	Mynydd y Ffynnon II	8.60	10.0	15	71	0	3
22	North Radnorshire Commons	12.52	23.1	29	260	9	1
16	Pale Estate	5.36	6.9	6	31	1	6
17	Pen y Gwely	0.93	5.4	4	1	3	0
18	Pennant, Llandrillo,	0.56	44.6	4	21	2	10
19	Penrhyddlan/Llidiartywaun	9.37	3.6	14	20	13	14
20	Pentrefoelas	13.60	7.7	4	101	4	16
21	Radnor Forest	19.81	3.1	21	40	15	4
23	Radnorshire Hills	16.02	16.4	26	236	11	16
24	Reeves Hill	1.17	16.2	6	13	0	0
25	Ruabon Mountain	15.19	9.0	28	108	20	15
26	Trwm y Fawnog	14.35	12.0	19	153	6	8
27	Vyrnwy Estate I	7.69	9.0	5	64	4	3
28	Vyrnwy Estate II	4.57	14.7	6	61	6	1
29	Y Foel Windfarm	3.57	2.5	0	9	0	1

Upland Surveys Table 4

Ref no	*Name*	*Med/PM Sett*		*Quarries*		*Butts*	
		Known	*New*	*Known*	*New*	*Known*	*New*
1	Bailey Hill, Powys	0	4	0	3	0	0
2	Berwyn Transect	0	28	0	0	0	0
3	Black Mountains I	7	15	2	92	0	0
4	Black Mountains II	0	6	0	123	0	0
5	Carno (Trannon)	2	1	0	0	0	0
6	Carno - Dwyrhiw	1	29	0	0	0	0
7	Elan Valley	0	26	0	4	0	3
8	Marcheini	0	1	0	0	0	0
9	Mynydd Clogau	1	5	0	0	0	0
10	Mynydd Hiraethog	0	16	0	3	0	23
11	Mynydd Llanelidan	0	0	0	4	0	0
12	Mynydd Nantcarfan	0	1	0	0	0	0
13	Mynydd y Cemmaes	0	0	0	1	0	0
14	Mynydd y Ffynnon I	0	9	0	0	0	0
15	Mynydd y Ffynnon II	10	16	0	0	0	0
22	North Radnorshire Commons	4	32	0	42	0	2
16	Pale Estate	0	5	0	1	0	0
17	Pen y Gwely	0	0	0	0	0	0
18	Pennant, Llandrillo,	0	3	0	2	0	0
19	Penrhyddlan/Llidiartywaun	0	6	0	0	0	0
20	Pentrefoelas	0	8	0	2	0	16
21	Radnor Forest	0	24	0	0	0	0
23	Radnorshire Hills	0	37	7	55	1	20
24	Reeves Hill	0	0	1	2	0	0
25	Ruabon Mountain	1	9	0	1	0	31
26	Trwm y Fawnog	4	16	0	0	0	5
27	Vyrnwy Estate I	1	16	0	0	0	3
28	Vyrnwy Estate II	0	13	0	9	0	2
29	Y Foel Windfarm	0	4	0	0	0	0

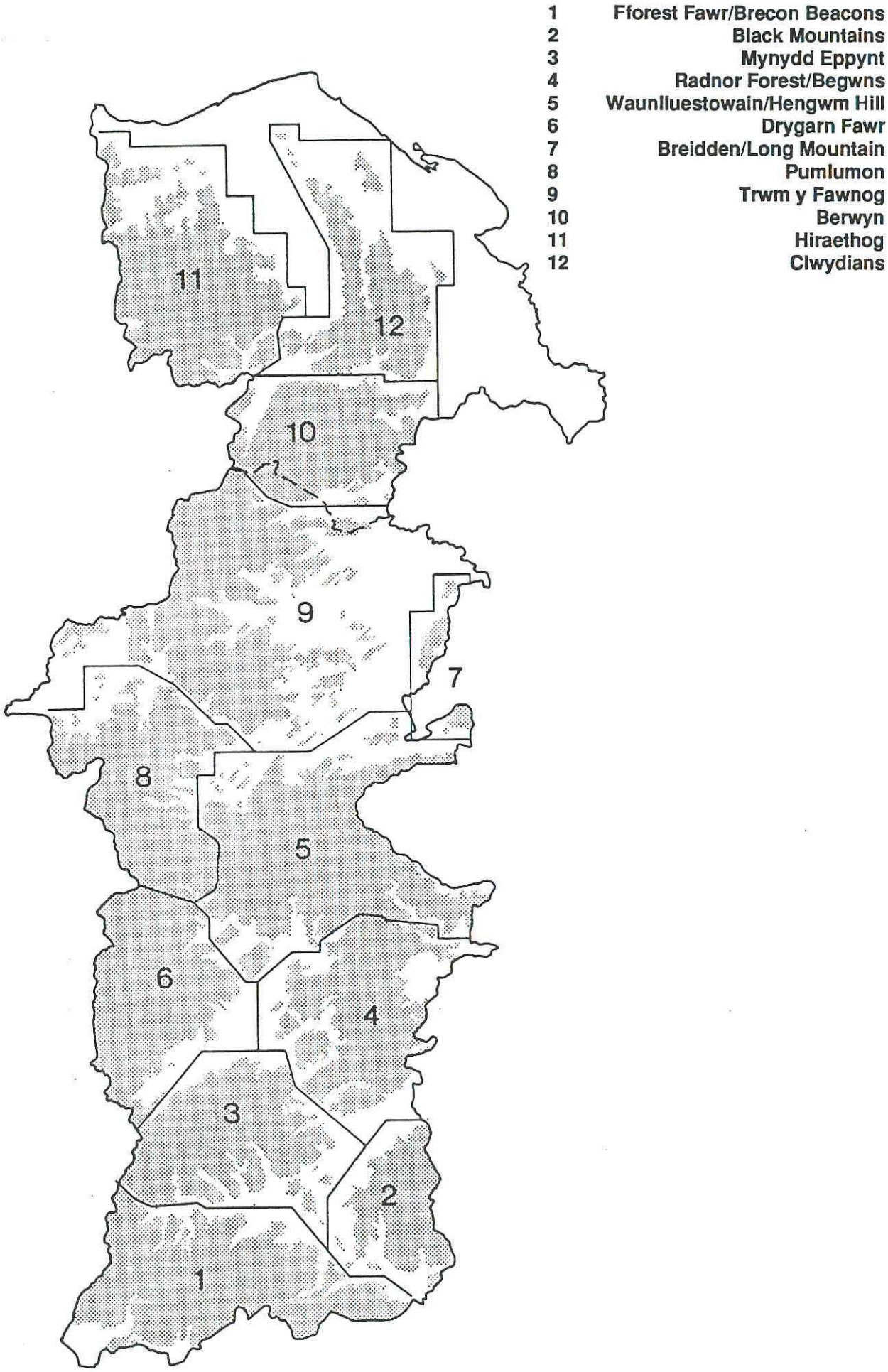


Fig 1 Upland zones of Powys and Clwyd as defined in 1989

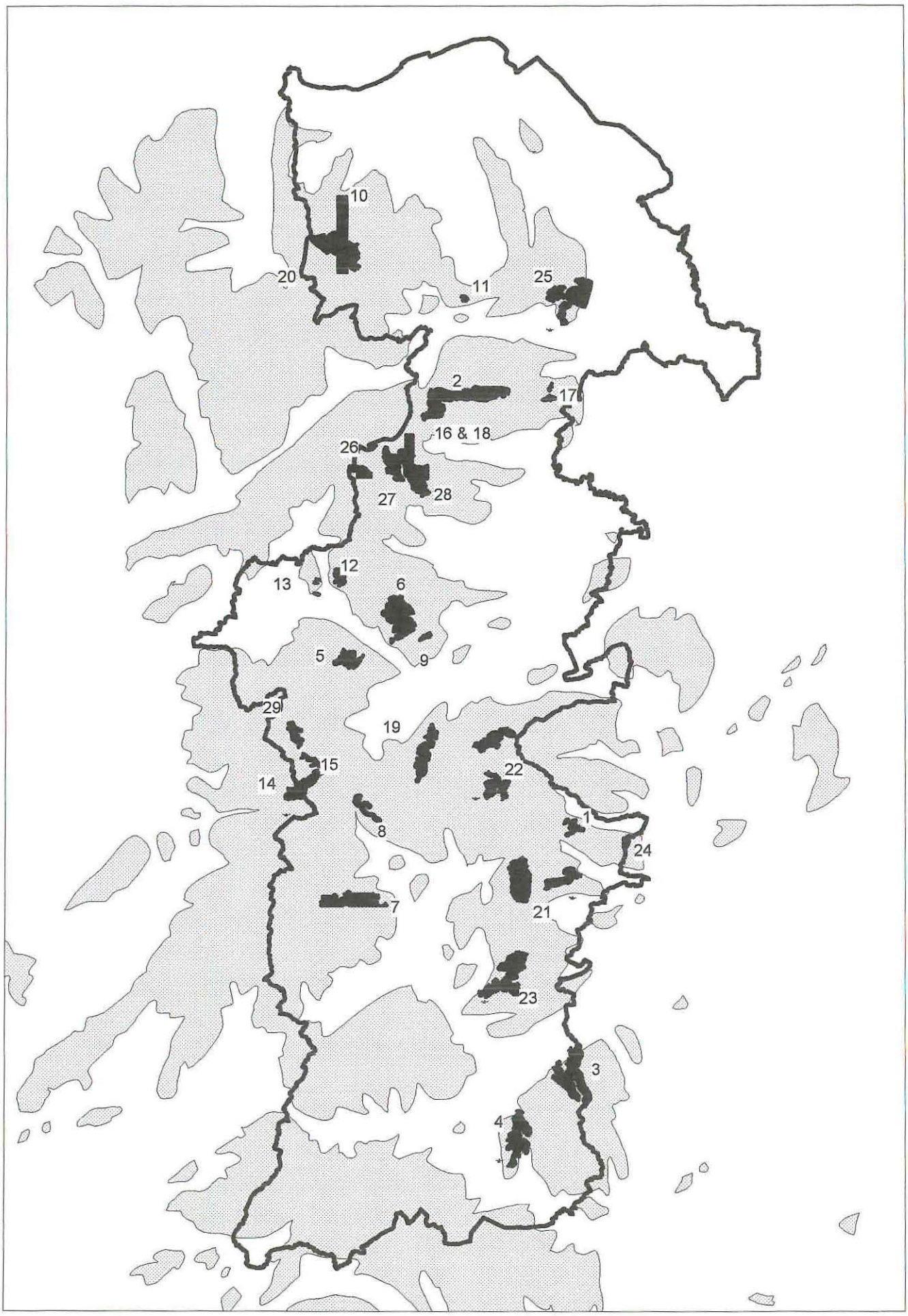


Fig 2 Upland projects undertaken by CPAT between 1989 and 1999 (Numbers indicate reference nos in Table 1)

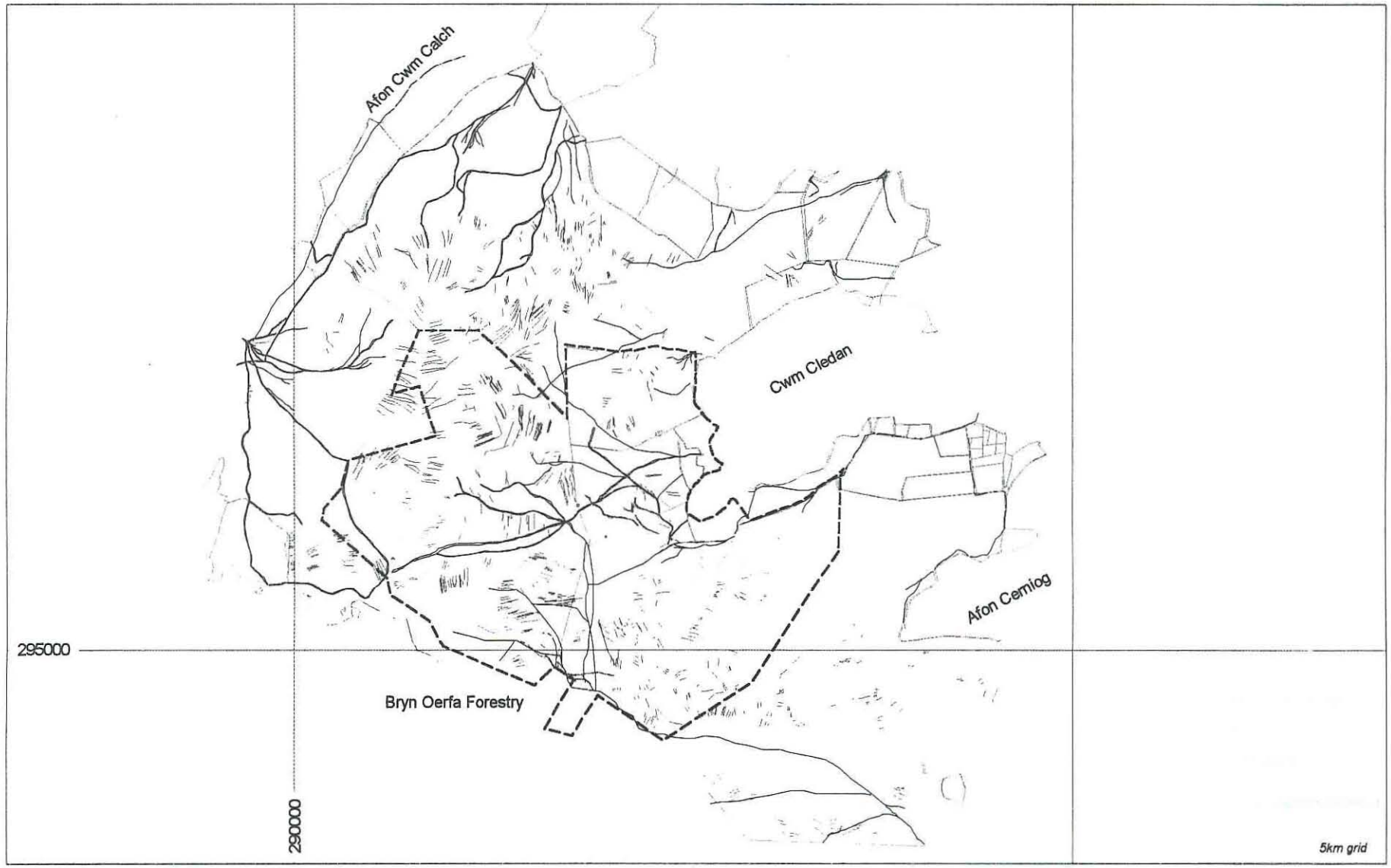


Fig 3 Trannon Moor - the peat cuttings (shown as short straight lines).

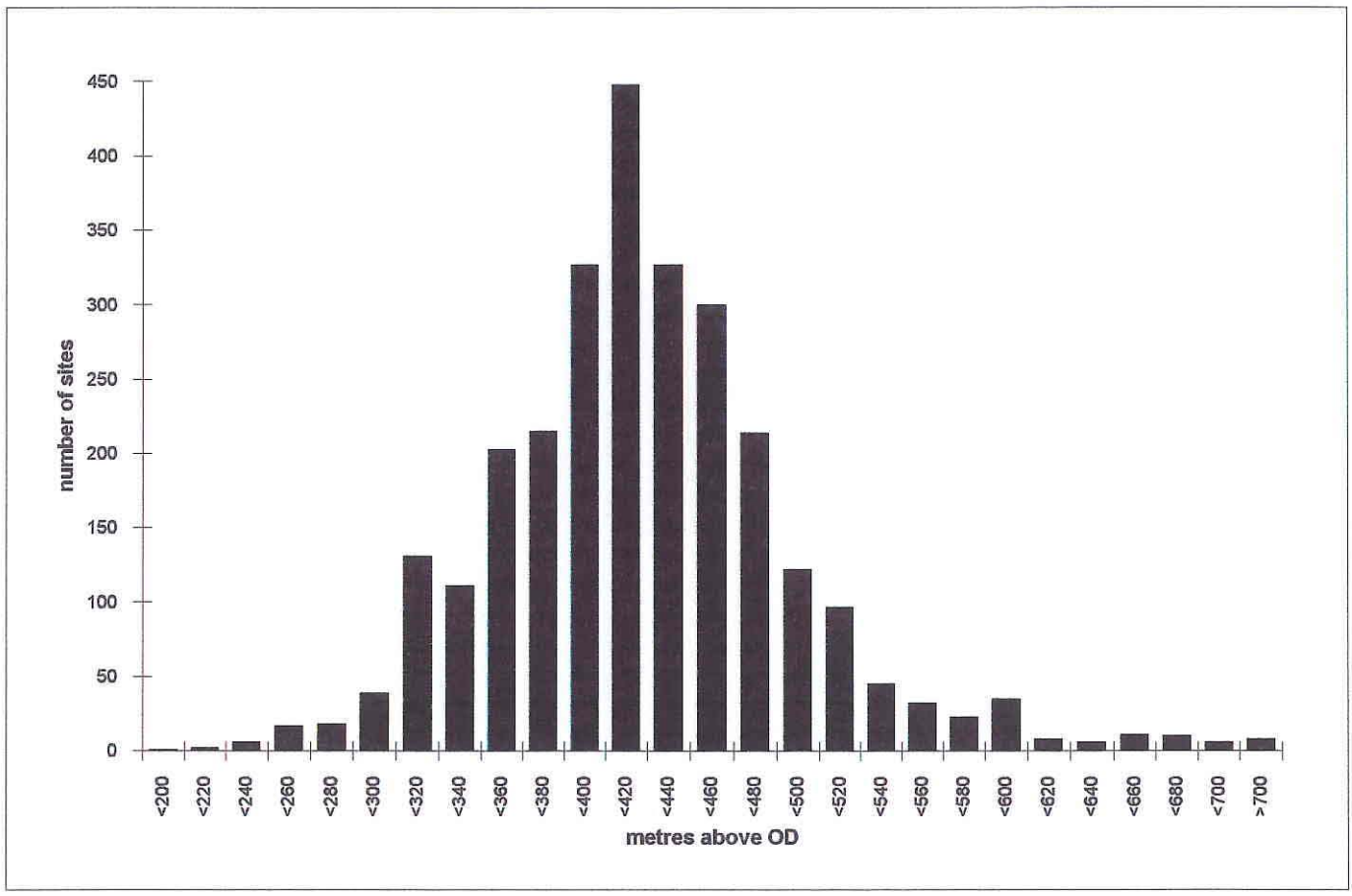


Fig 4 Altitudes of all sites in the fieldwork areas

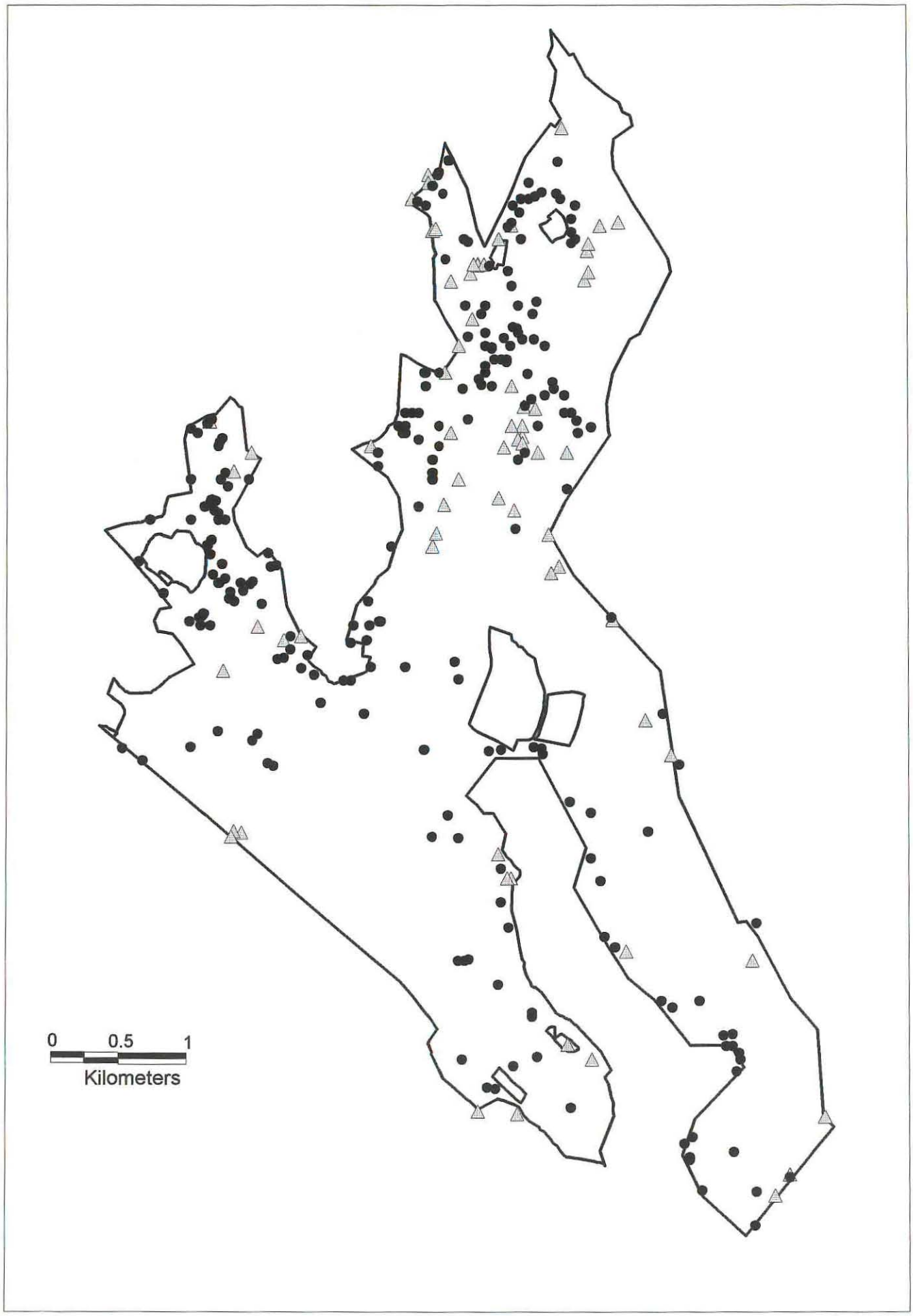


Fig 5 Black Mountains I: known sites shown by triangles, new sites by circles

Fig 6 Black Mountains II: known sites shown by triangles, new sites by circles

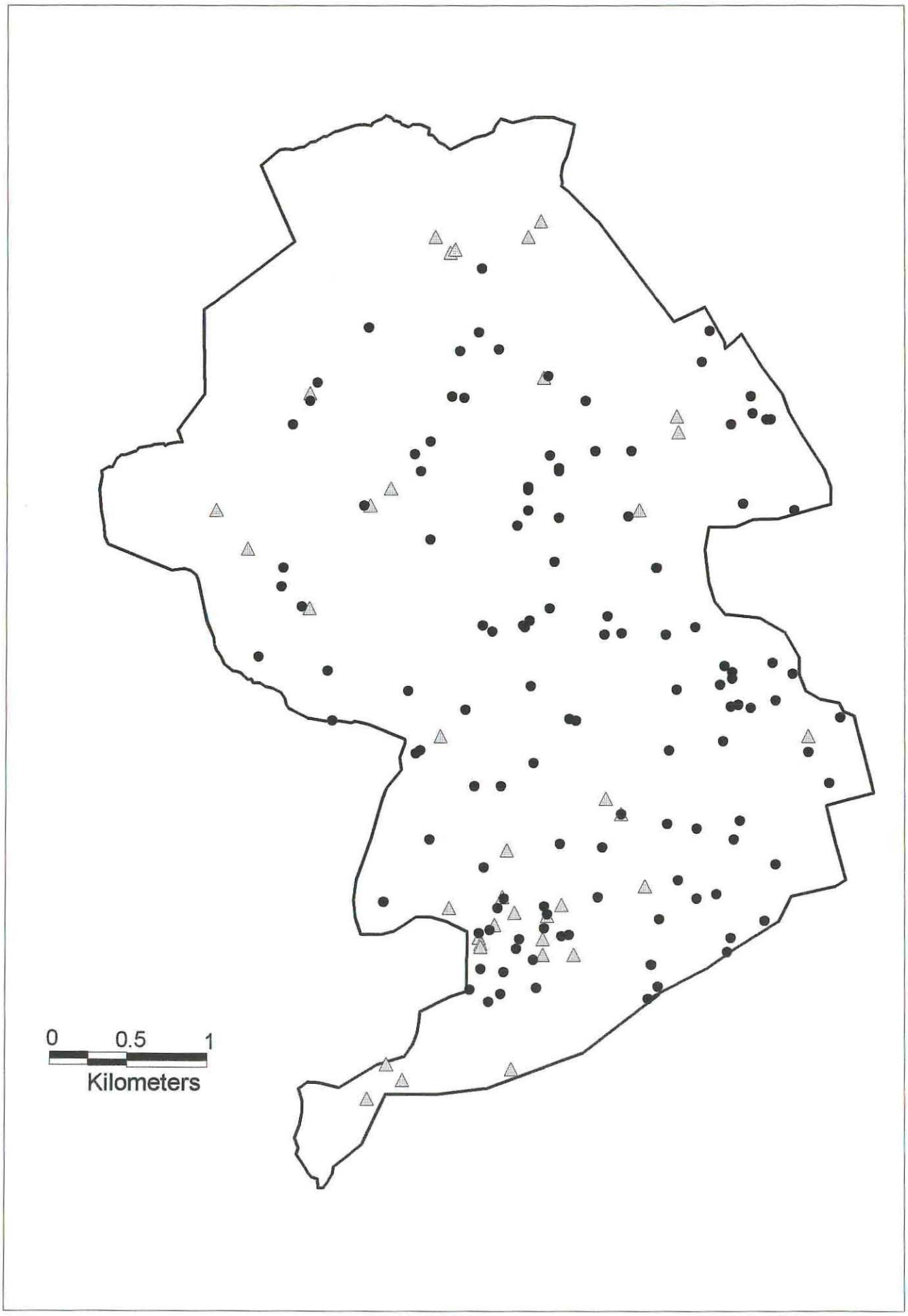


Fig 7 Carno-Dwyrhiw: known sites shown by triangles, new sites by circles

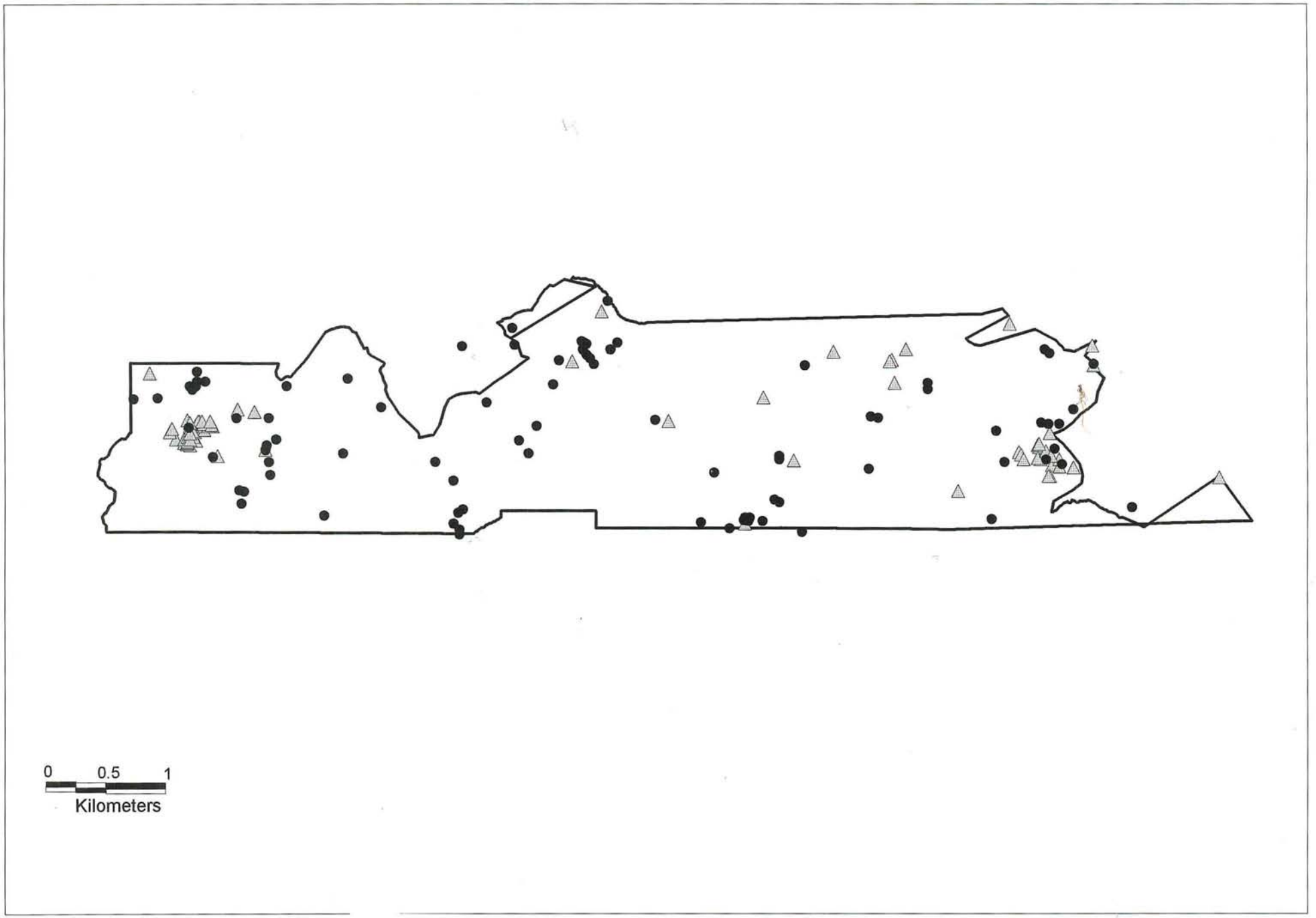


Fig 8 Elan Valley: known sites shown by triangles, new sites by circles

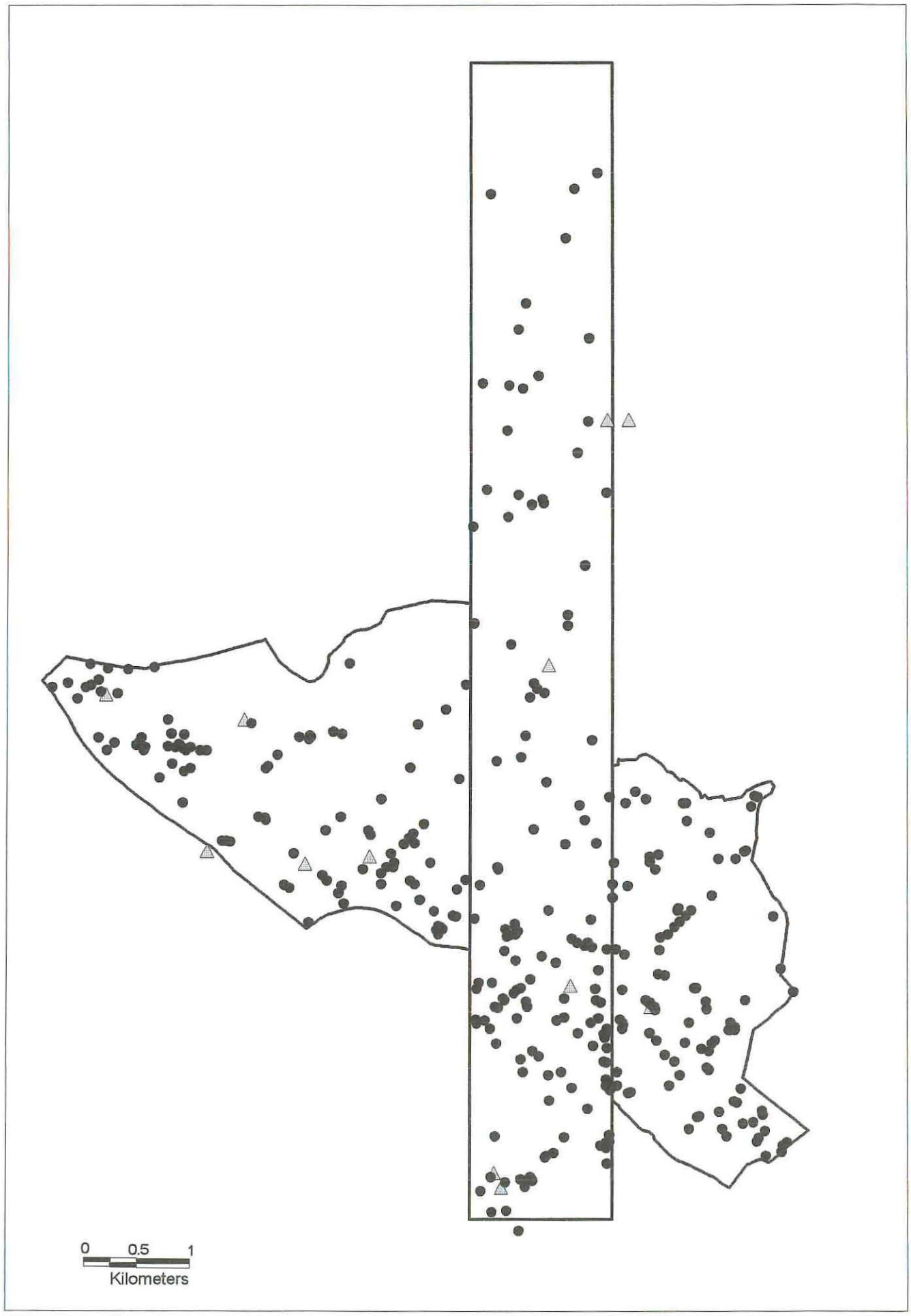


Fig 9 Mynydd Hiraethog and the the overlapping Pentrefoelas windfarm: known sites shown by triangles, new sites by circles

Fig 10 Mynydd y Ffynnon II: known sites shown by triangles, new sites by circles

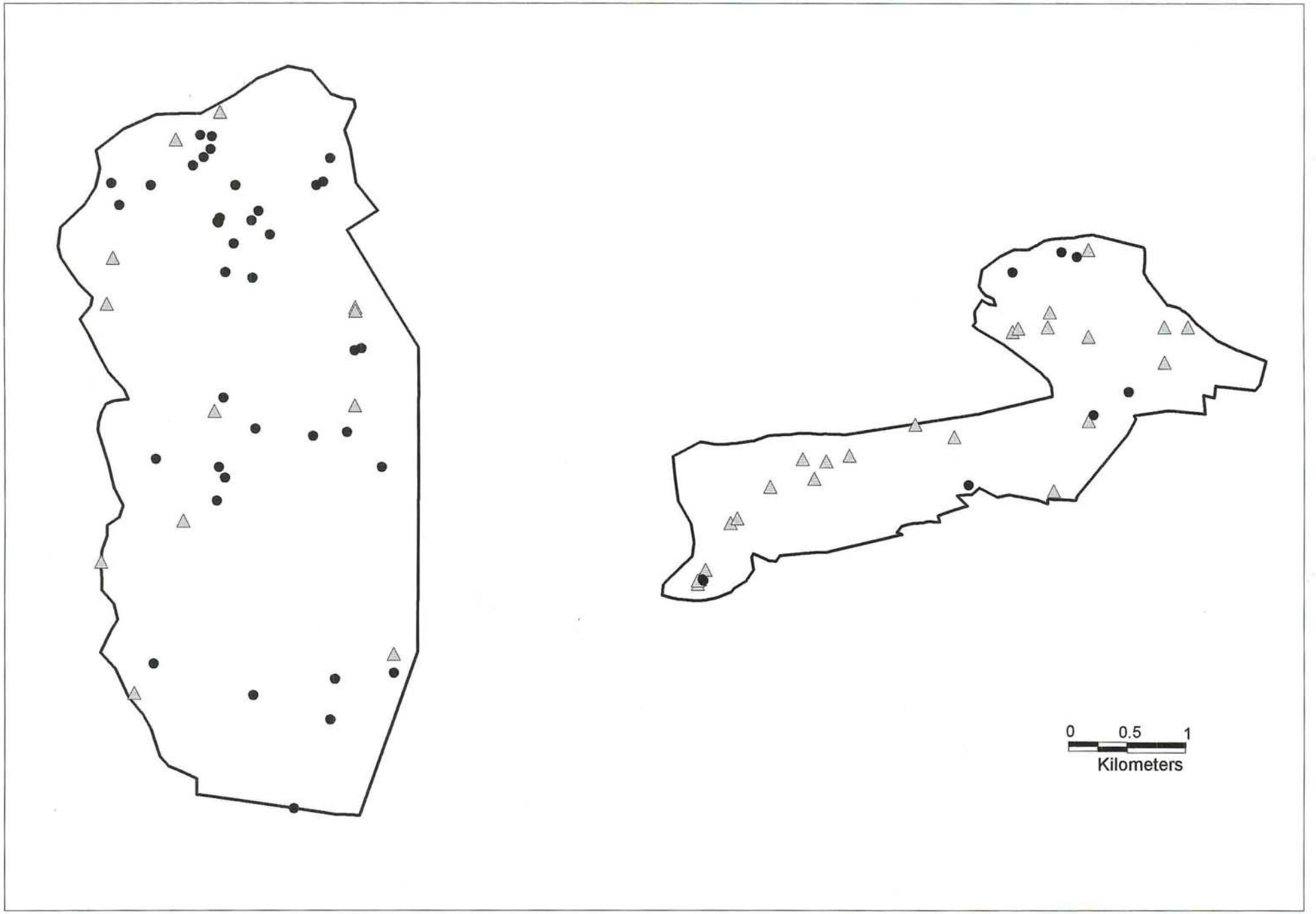


Fig 11 Radnor Forest: known sites shown by triangles, new sites by circles

Fig 12 Radnorshire Commons: known sites shown by triangles, new sites by circles

Fig 13 Radnorshire Hills known sites shown by triangles, new sites by circles

Fig 14: Ruabon Mountain: known sites shown by triangles, new sites by circles

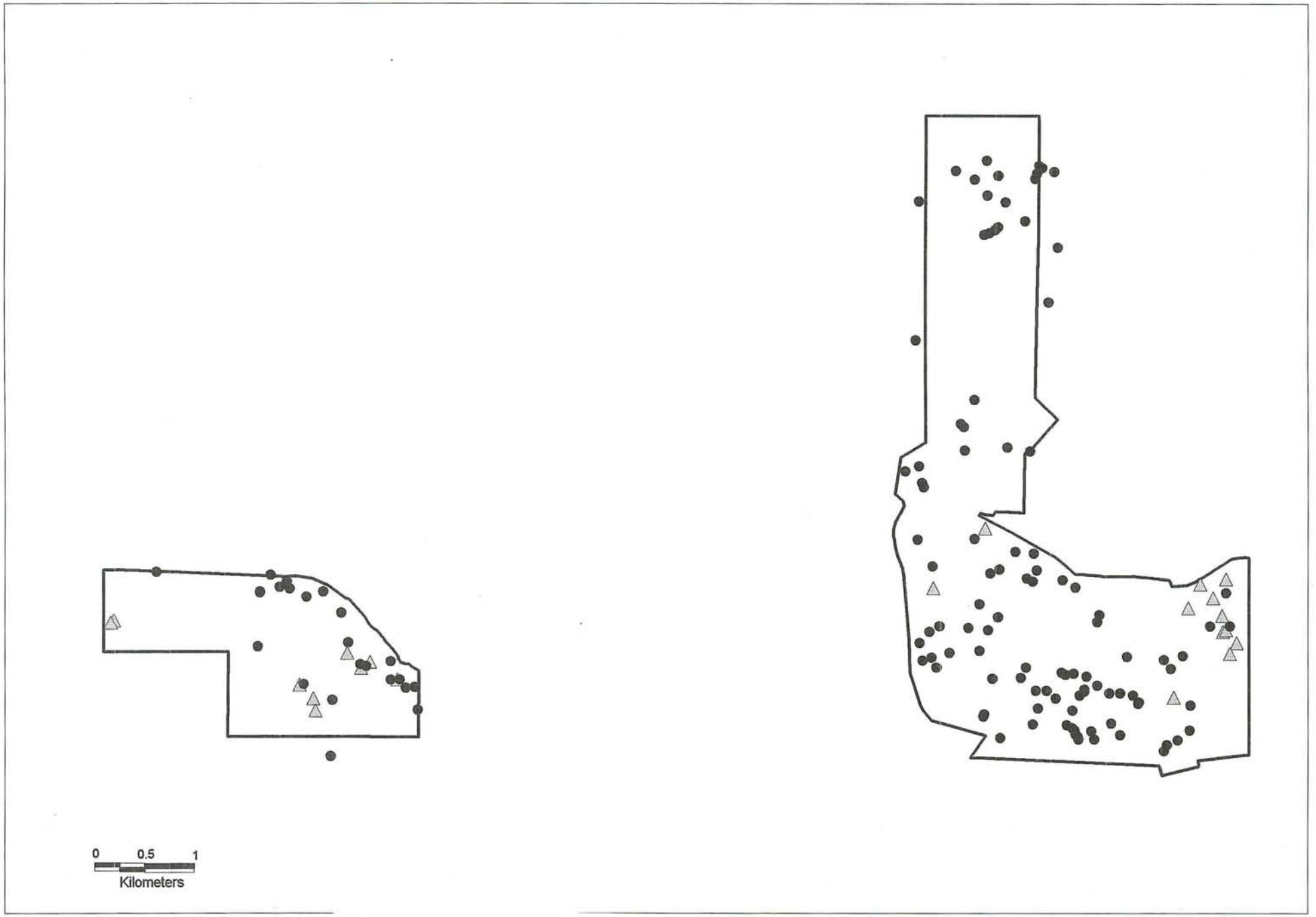


Fig 15 Trwm y Fawnog: known sites shown by triangles, new sites by circles

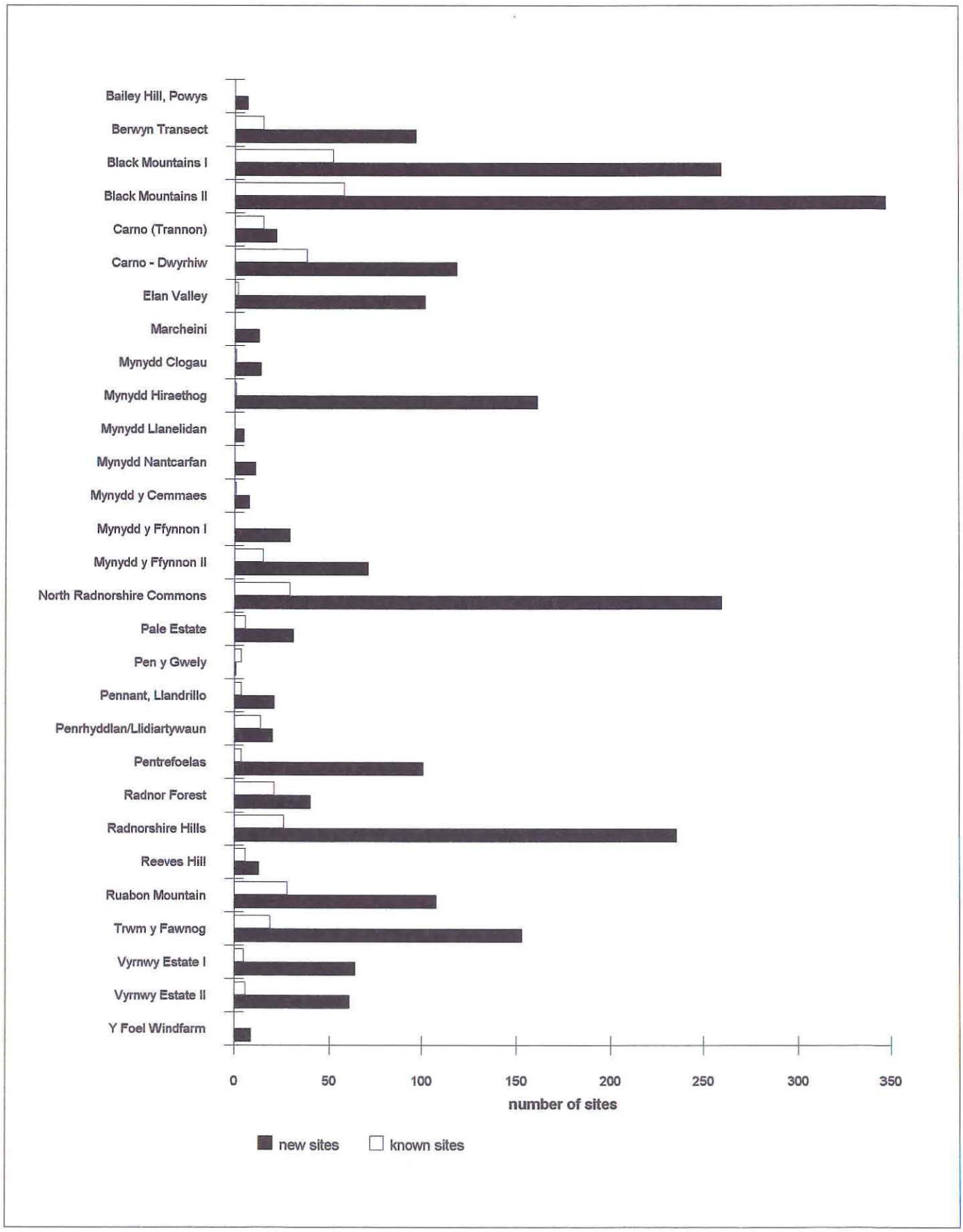


Fig 16 Number of sites, known and new for all projects, 1989-1999

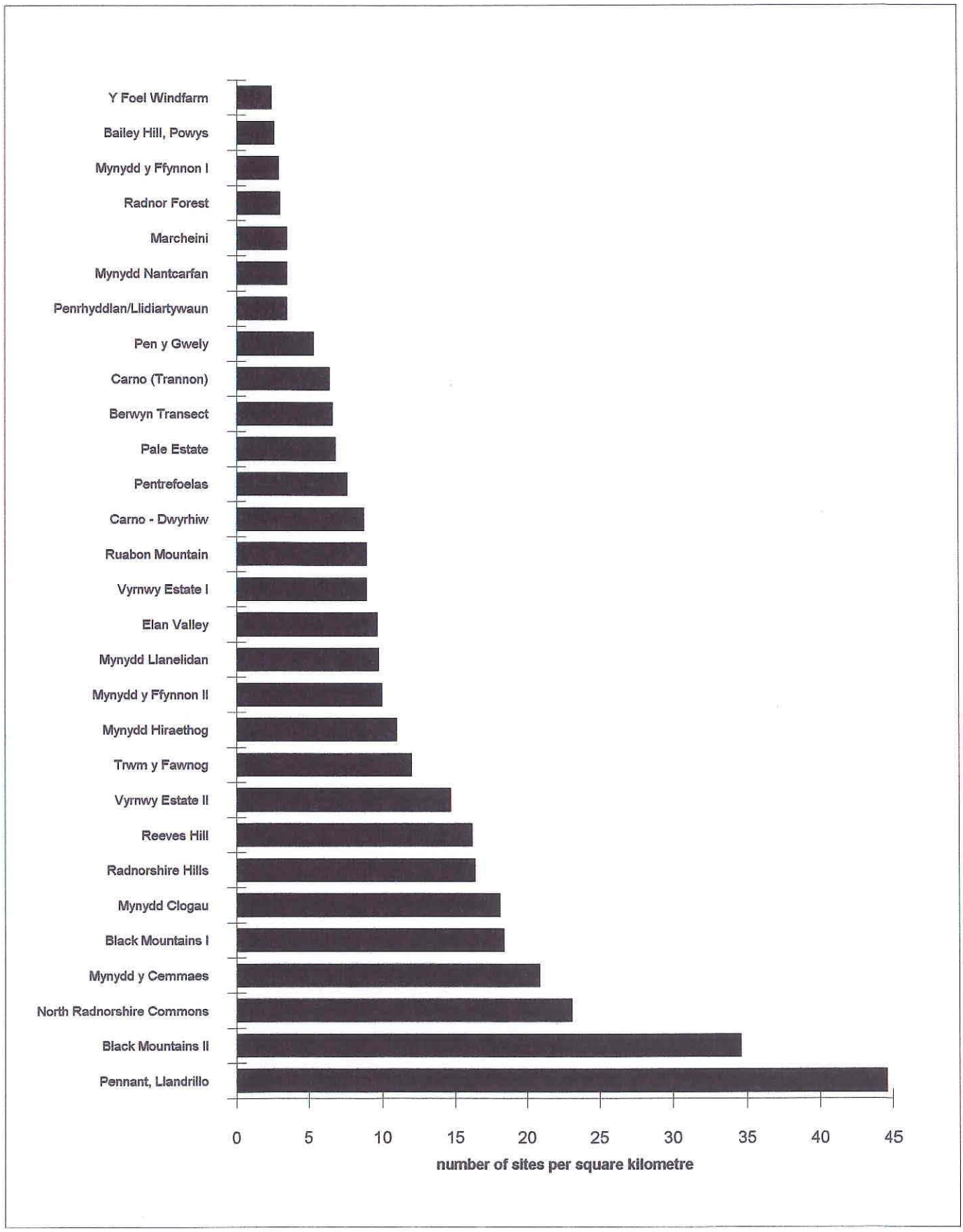
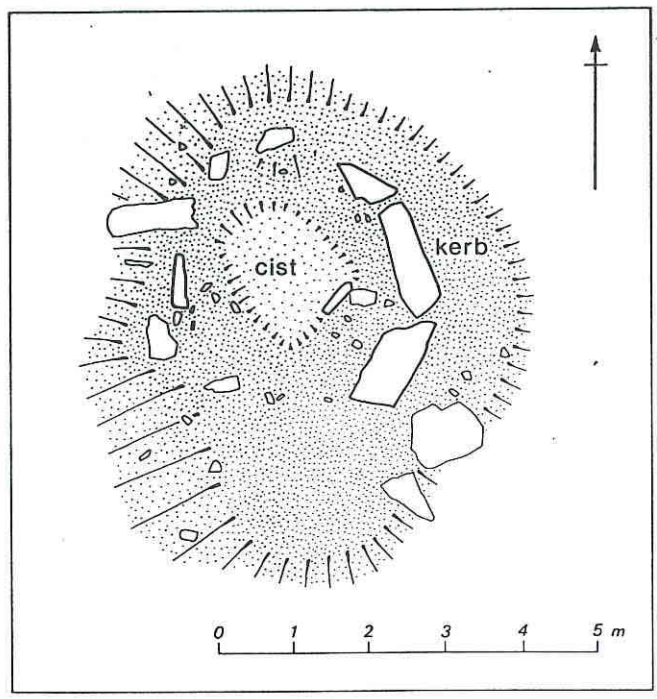


Fig 17 Number of sites per km^2 for all projects 1989-1999



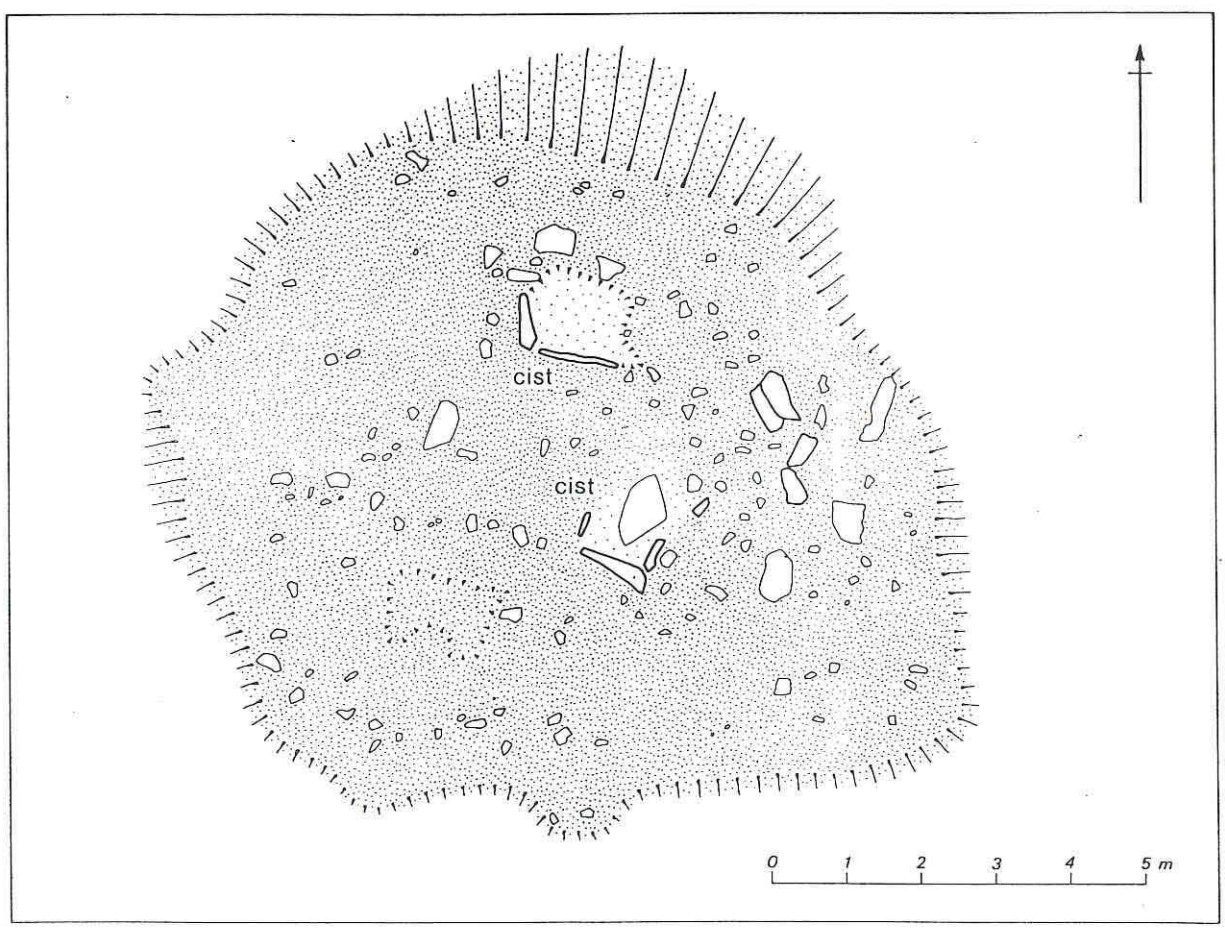


Fig 18 Pennant cairns, Y Berwyn: PRN 105142 (top) and PRN 19584 (bottom)

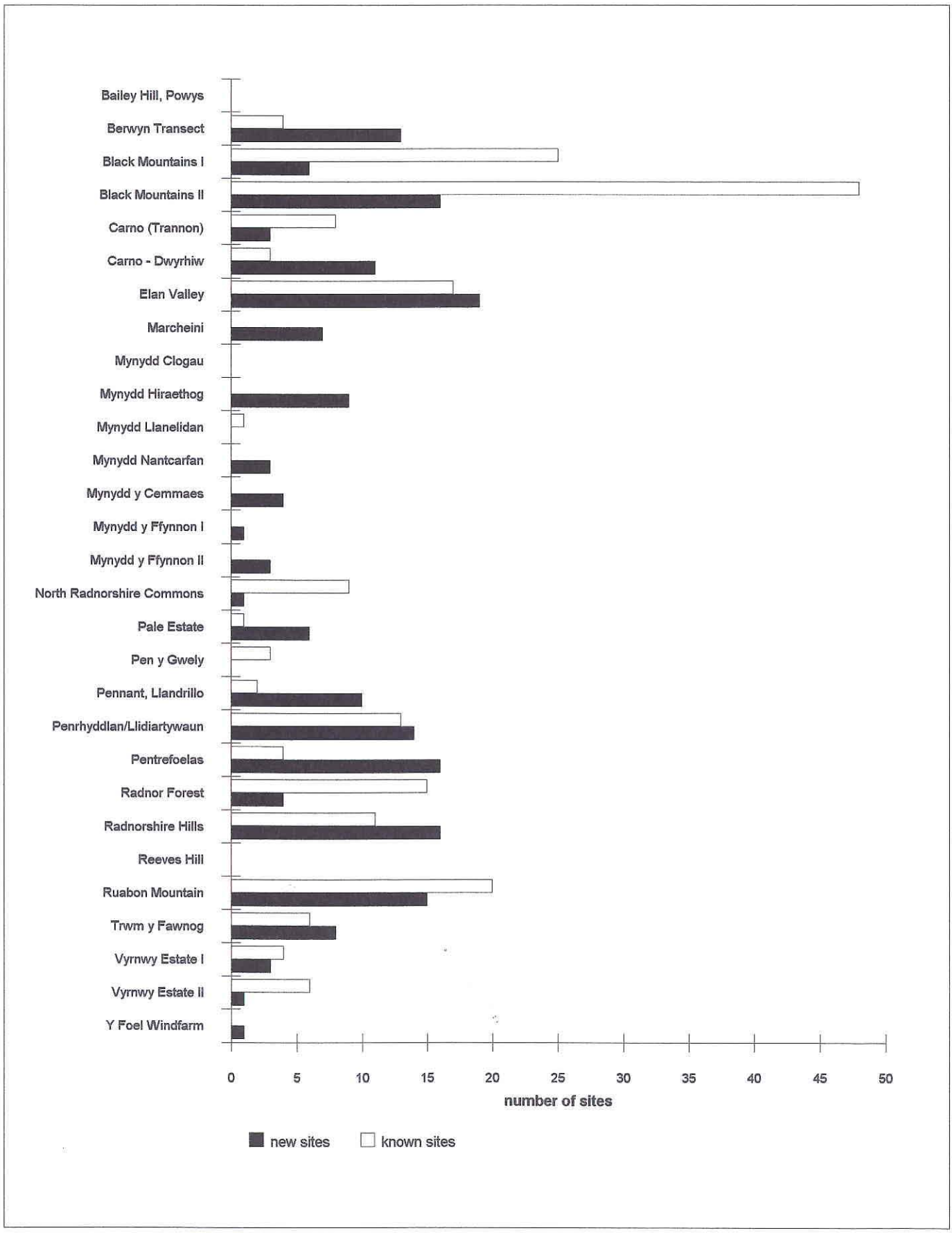


Fig 19 Numbers of prehistoric sites, known and new, for all projects 1989-1999

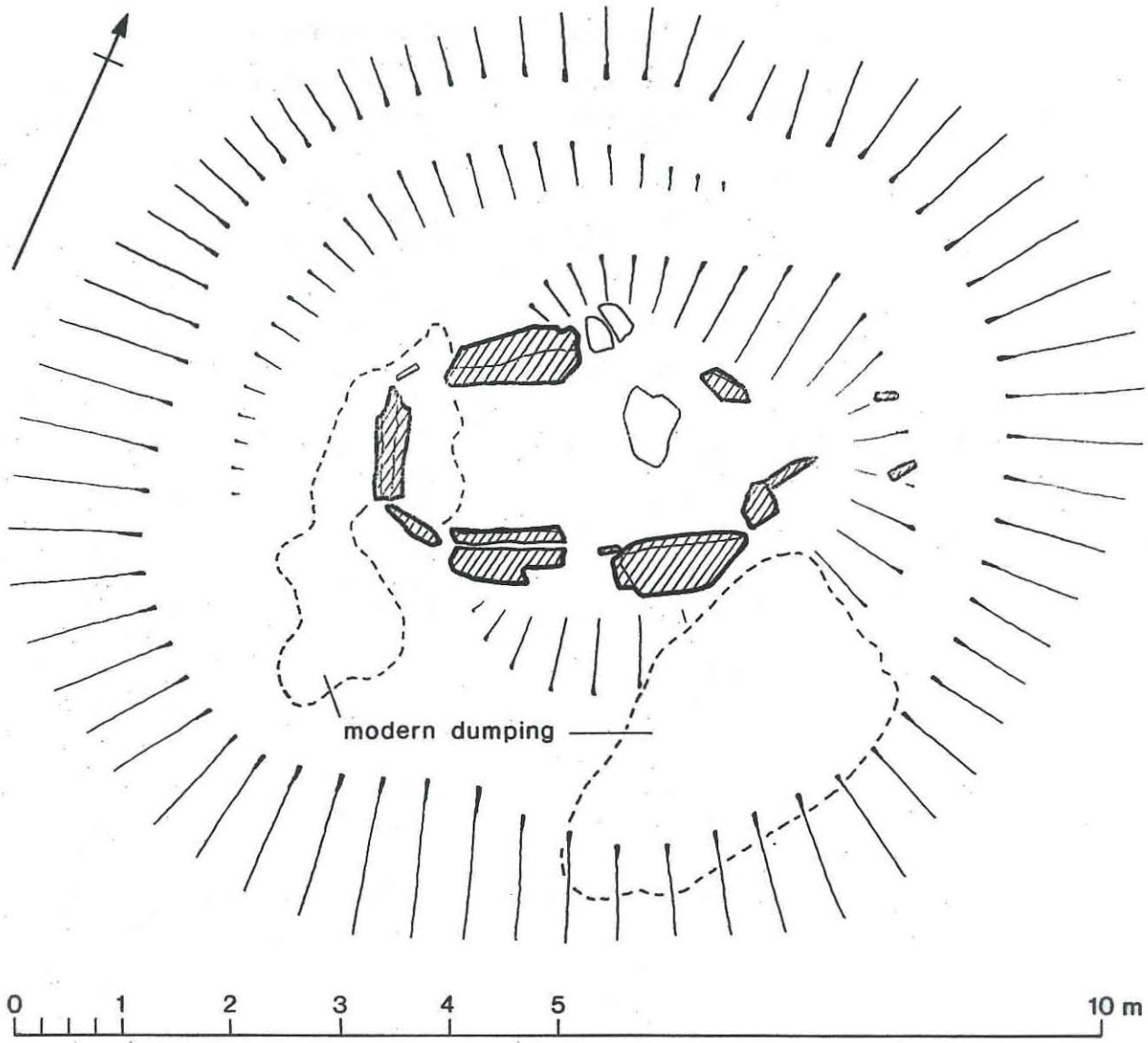


Fig 20 Chambered cairn above Lake Vyrnwy (PRN 7820)

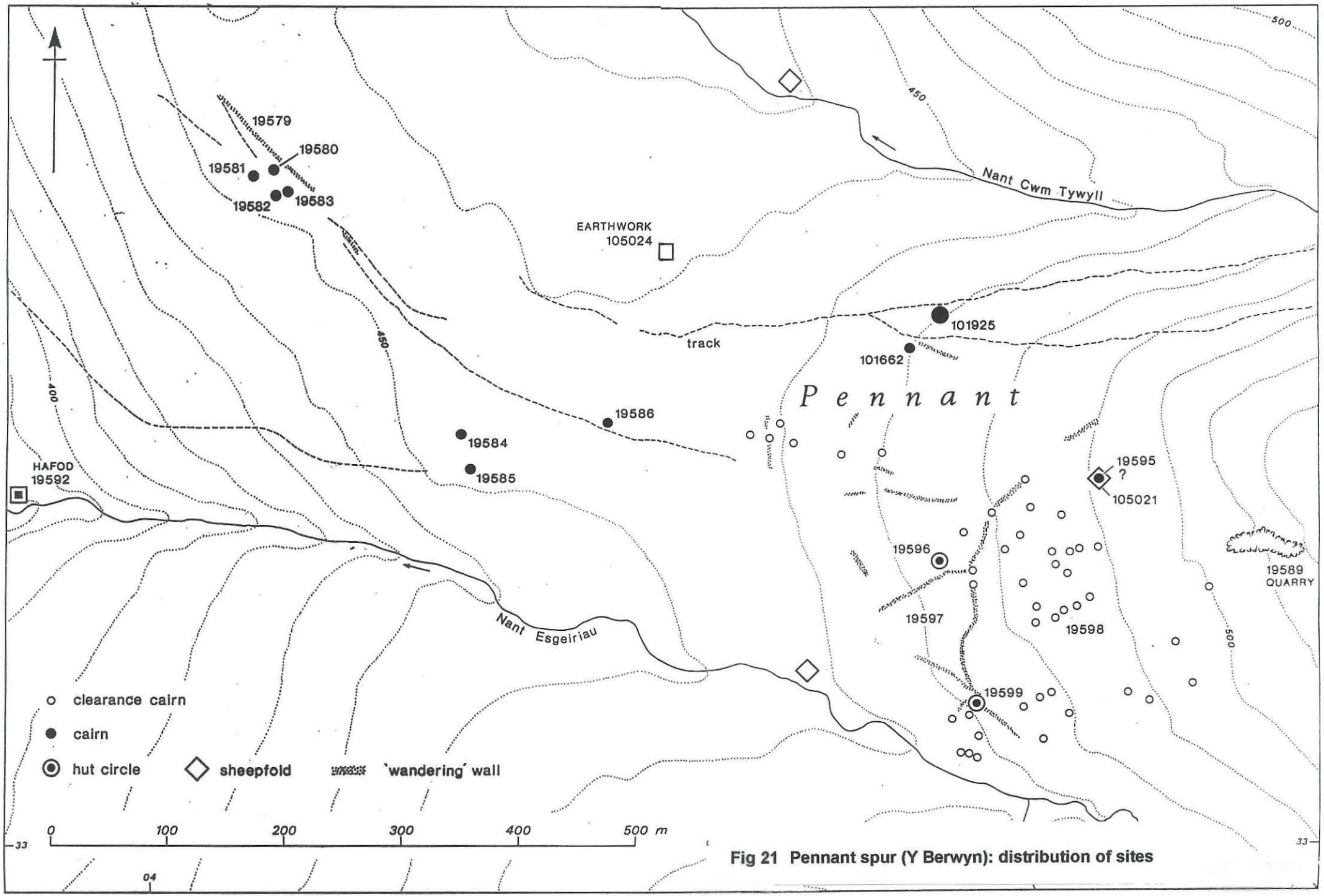


Fig 21 Pennant spur (Y Berwyn): distribution of sites

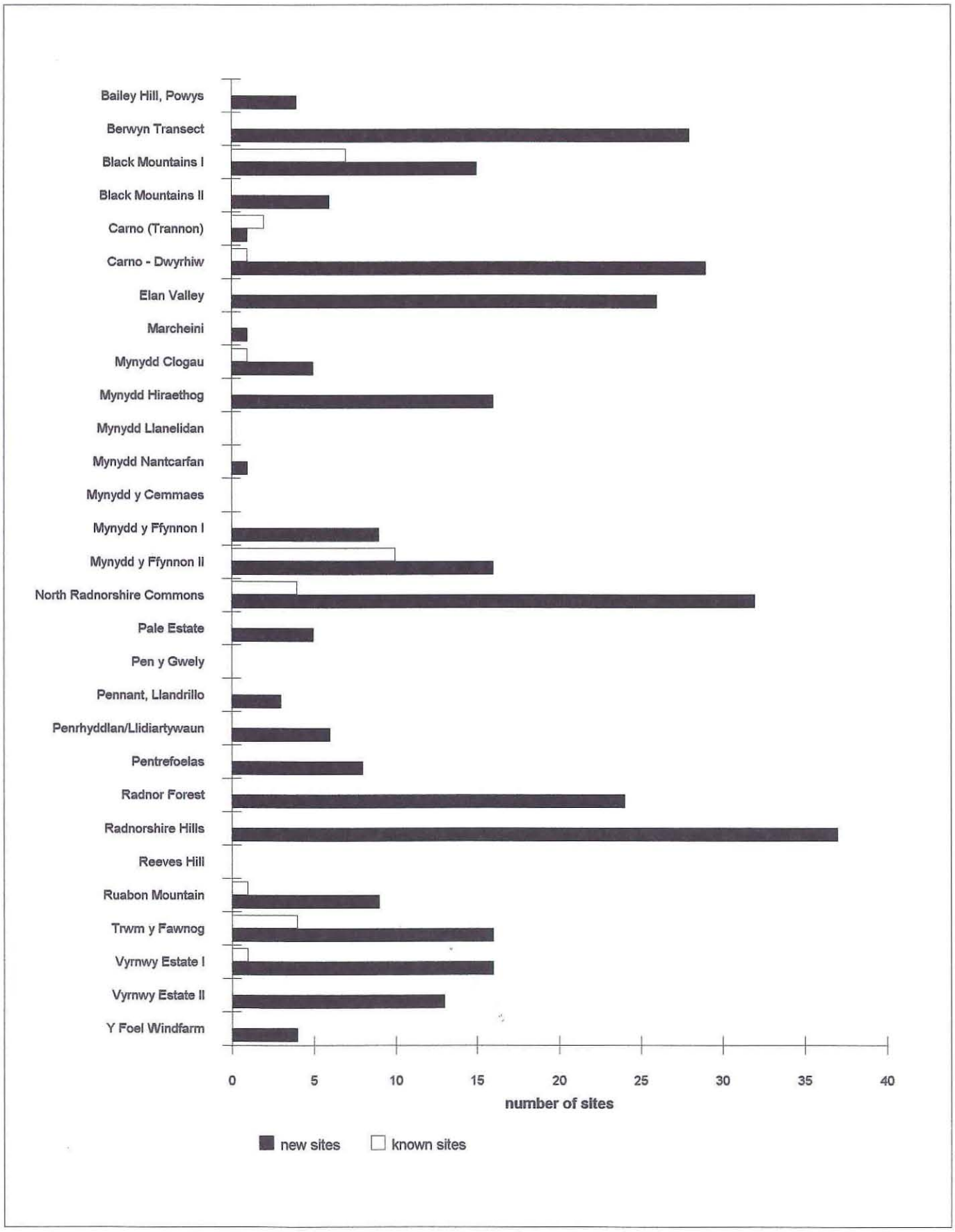


Fig 22 Numbers of medieval and post-medieval settlement sites, known and new, for all projects 1989-1999

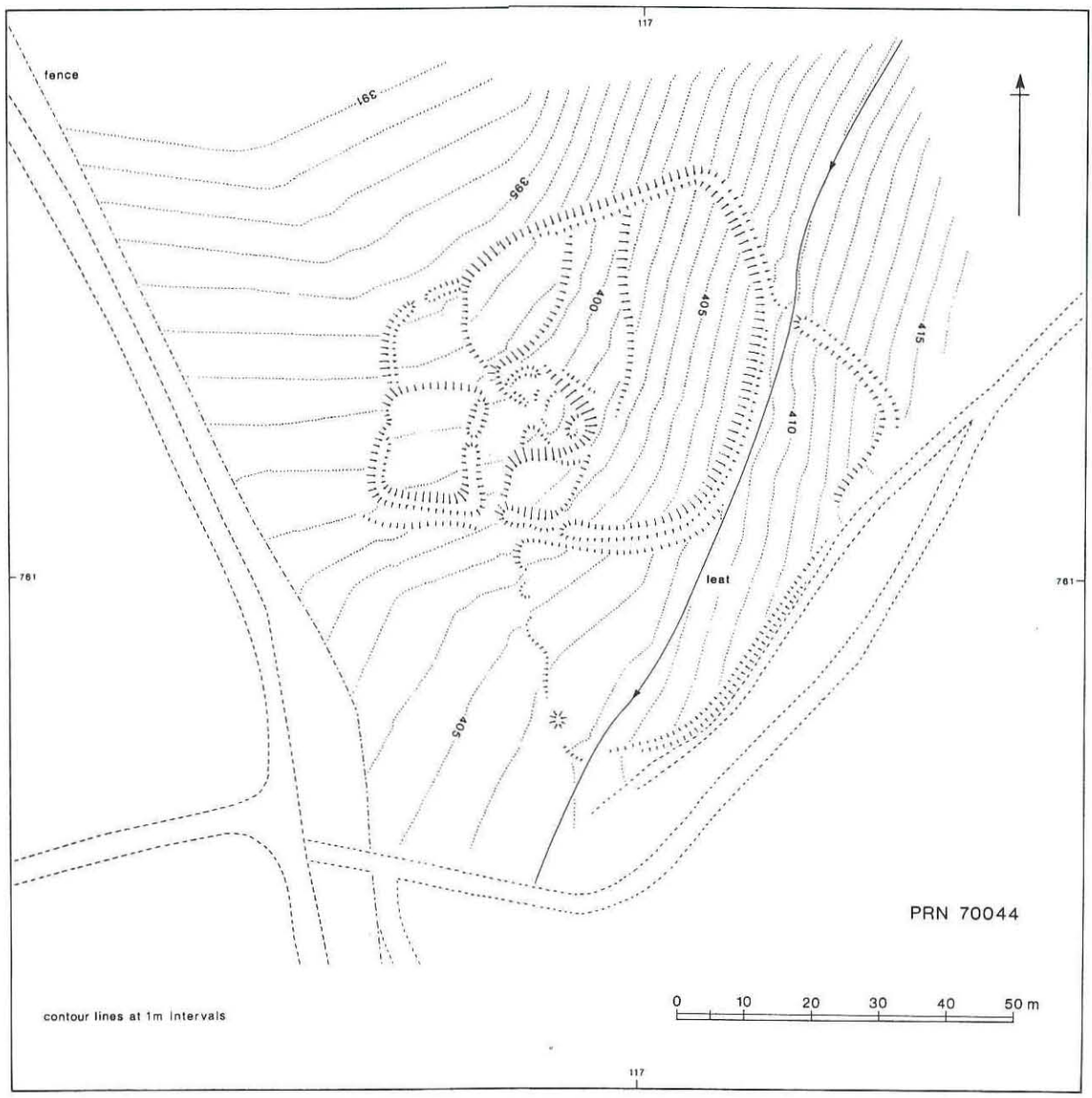


Fig 23 Moelfre Hill (Radnorshire): settlement site (PRN 70044)