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# Field boundaries in Wales - pilot project (part II)

GAT Project G1677

Report no. 467

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*Ymddiriedolaeth Archaeolegol Gwynedd*
Gwynedd Archaeological Trust

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# 1 Introduction

## 1.1 General background

1.1.1 Historic landscape characterisation has confirmed anecdotal evidence that there is a wide range of variation in field boundaries across Wales, in both pattern and construction. This variation is both regional and chronological in origin and forms a key component of the distinctiveness of the Welsh landscape.

1.1.2 Field patterns and, by implication, boundary types also form an important part of the history and archaeology aspect of *LANDMAP* exercises (funded by Countryside Council for Wales and Unitary Authorities), where they form the basis of the definition of many rural character areas, for example in the recent study of Snowdonia (Gwyn and Thompson, 2002). Relevant information is recorded at two levels within *LANDMAP*, generally as 'fieldscape' at level 3 (pattern), and as various specific types at level 4 (detail) (see figure 1).

1.1.3 The importance of field boundaries as an essential component of the landscape is also confirmed by the emphasis placed on the renewal and upkeep of 'traditional boundaries' within various rural initiatives such as Tir Gofal, the Environmental Development Fund (EDF), which funds environmentally-improving works in Areas of Outstanding Natural Beauty, and the Conwy Biodiversity Grant scheme. Their historic and wildlife value has been recognised in the recent Hedgerow Legislation. Despite this acknowledged importance, however, field boundaries represent a much-neglected field of historical and archaeological study and investigation in Wales.

## 1.2 Aims of this project

1.2.1 The examination of field boundaries, as landscape features and archaeological sites, is still in its infancy. In order to reinforce positive perceptions of historic field boundaries, to help guide best practice in their future management and to understand better their historical significance, it was felt that a clearer understanding of the nature and character of boundaries was essential. A project was therefore set up whose aims were basically fourfold: to identify and begin to explain the variety in boundary type and form across the country; to examine different boundary patterns in terms of distribution and period; to begin to assess the historic value of the boundaries; and to look at management needs.

1.2.2 This report forms part of the second part of a pilot project, jointly funded by Cadw and CCW. The first part of the study (GAT report no. 394, May 2001) looked at a number of related issues: it defined what constituted a boundary; undertook a brief chronological review of known types; carried out consultation towards establishing an atlas of regional boundary types; undertook fieldwork in selected areas to try to define criteria which could be used to assign 'period' to different types; made recommendations for further archaeological recording of boundaries; and established the need for careful management.

1.2.3 The first stage of the second part of the project reported on work funded by CCW. This project (GAT report no. 458, June 2002) involved the production of a preliminary Atlas of Regional Boundary Types covering the whole of Wales. Following consultation with professional colleagues in the other Welsh Archaeological Trusts, a rapid 'windscreen' survey of boundaries in mid and south Wales was undertaken by the authors. Using

GIS, a preliminary map of Wales was produced with broad boundaries showing the limits and distribution of regional boundary groups, cross-referenced to an inventory containing written descriptions of the types, and supported by photographs showing examples of both types and groups. A series of recommendations for further work was also included.

1.2.4 This report is on the work carried out as second stage of part two of the project, funded by Cadw. The aims of this particular project were to take the initial results of the broad-brush work on field boundaries (the types of pattern established and used nationally by *LANDMAP*, and the list of boundary types drawn up during the first part of this project) and look at an area (north-west Wales) in more detail. The specific aims were two-fold: to begin to examine field boundary patterns in more detail to see whether any chronological importance might be attached to certain types; and to use a sample of Tir Gofal farm surveys as a means of assessing the potential of area-specific intensive boundary surveys.

## 1.3 Acknowledgements

1.3.1 The Trust wishes to acknowledge the financial support received from Cadw: Welsh Historic Monument for this project.

1.3.2 The work has been carried out, and the report compiled, by John Roberts and David Thompson. Marianne Longley kindly prepared the illustrations and table 2. Nina Steele prepared the figures, and Margaret Mason proof-read the text.

1.3.3 The authors are grateful for the help and advice provided by Louise Austin (Cambria Archaeology), Chris Martin (Clwyd-Powys Archaeological Trust), Charles Hill (Glamorgan-Gwent Archaeological Trust), Richard Kelly (CCW) and Dr Mike Yates (Cadw).

## 2 Methodology

2.1 The boundary types list described in section 3 was drawn up by the report authors following consultation with Tir Gofal project officers, CCW staff and other archaeologists working in Wales. This consultation exercise was supplemented by a rapid windscreen survey (again undertaken by the authors) in south-western and eastern and south Wales, as well as their own local knowledge of the Gwynedd area.

2.2 The boundary groups were established to try to get a handle on the distribution of the different types across in a way which could be mapped. The validity of these will be tested during the next phase of the project (to be funded by CCW).

2.3 The field boundary patterns discussed in section four are those used at level four of *LANDMAP* (CCW's **L**andscape **A**ssessment a**n**d **D**ecision-**Ma**king **P**rocess) (see figure 1). This list was agreed by an informal working party set up to develop the methodology behind the history and archaeology aspect of *LANDMAP*, and involved staff from the four Welsh Archaeological Trusts, Cadw and CCW. It was intended to cover the range of broad field patterns that could be identified in the Welsh landscape, and was intended as a means of describing landscape character rather than an approach to chronology. However, section 4 of this report is an attempt to put a chronological steer on to them. *LANDMAP* exercises are usually carried out as rapid paper-based studies at unitary authority level.

2.4 The Welsh Archaeological Trusts are heavily involved in Tir Gofal, the all-Wales agri-environmental scheme. In addition to inputting SMR-based data to all farm management plans, they carry out detailed surveys of a 20% sample of successful farms using standard fieldwork methodologies. If this work continues, then these farm surveys represent the most effective way of obtaining detailed information on farm boundaries across Wales.

# 3 Boundary typology

## 3.1 Boundary types

3.1.1 Using the data gathered during the first phase of the project and included in the relevant report (GAT report no. 394), supplemented by the interviews and the windscreen surveys carried out during the first phase of part 2 of the project (see above and GAT report no. 458), a preliminary glossary of boundary types has been established. This comprises eighteen basic types which are listed in table 1. Some of the broad types have identifiable sub-types and where these are significant on a pan-Wales basis, these are also included in table 1.

3.1.2 Colour photographs to illustrate the eighteen main types are included as illustrations figures 1 - 18 following table 2.

3.1.3 Detailed descriptions of the main types (some of which are accompanied by sketch drawings) are included in table 2. (The sketches are based on those contained in other publications. The basic drystone wall and slate fence are in *'Drystone walling - a practical handbook'*, BTCV, 1994, pp 14-5. The clawdd, mortared wall and earth bank are in 'Enlli', R Gerallt Jones and C J Arnold, 1996, p 129. The others are in an unpublished report *'Cornwall's Historic Field Boundaries- a review'* compiled by E Bull and edited by P Herring, 1999, for the Cornwall Archaeological Unit.)

## 3.2 Boundary groups

3.2.1 Although this report does not deal specifically with the validity and distribution of the so-called 'boundary groups' (that work is described in more detail in GAT report no. 458 and is the subject of further work funded by CCW), it was felt that much of the discussion behind their identification was relevant to this report, especially where some notion of dating can be associated with a particular group (in terms of type or pattern) (paragraphs 3.2.5 and 3.3.8, for example).

3.2.2 The interviews and fieldwork confirmed that only rarely are single boundary types 'characteristic' of a large area of countryside, and that such areas seem to be restricted to the uplands and to western parts of Wales. More frequently, boundaries appear in combinations, or associations, of types. C Martin commented that, in eastern Wales, one of the chief characteristics of field boundaries is that they are very mixed, to the extent that there are no areas dominated by a single type of boundary (C Martin, *pers comm*).

3.2.3 Thus it was decided that a series of boundary 'groupings' was needed to make sense of the data collected and to allow them to be mapped. The experience of the two windscreen surveys informed the establishment of eleven groups which were considered to be characteristic of the whole of the Welsh landscape at a basic level (although a couple of these were subsequently subdivided). These are included as table 3 and have been used to draw an all-Wales map, which shows where the different combinations of types (groups) can be found.

3.2.4 Local variations in boundary type and character, such as hedge laying techniques or wall-capping styles, often reflect particular traditions of working, or the influence of a large landowner such as a country estate. It became clear whilst collating the information derived from consultation exercises and from the windscreen surveys that

the derived boundary groupings broadly equated to particular combinations of geology, topography and exposure.

3.2.5 The greatest single boundary group present in Wales, forming a background boundary 'matrix' across the whole country is group 2 (see table 3) - hedgerows situated on low to medium sized banks with some standards (mature hedgerow trees). Group 1 boundaries, simple hedges, occasionally with low banks and generally with few hedgerow trees, are commonly associated with valley floor and river flood plains in particular. Group 1 frequently occurs in regular patterns indicative of parliamentary period enclosure (late eighteenth and early nineteenth century), and may often represent late enclosure of former open (flooded) meadow land.

3.2.6 Valley sides are generally occupied by group 2 boundaries, which give way to group 3 (sturdier boundaries, more substantial hedgebanks and a greater number of hedgerow trees) as exposure increases with greater altitudes. On higher land where walling stone is not freely available (for example, upland Carmarthenshire) or where exposure is too great for conventional hedges or hedgebanks, group 4 boundaries (earth banks and substantial hedgebanks often of hardy species such as gorse) are commonly present.

3.2.7 Fringe areas around higher mountain land differ from the general inland trends (paragraph 3.2.6) of changes in boundary groups according to both changes in topography (from valley floors to upland pastures) and to localised differences in the availability of potential construction materials. In these areas boundaries (group 7) tend to be a heterogeneous mix of hardy boundary types, mainly cloddiau variants, drystone walls, earth banks and hedgebanks (frequently with a high gorse content and substantial banks).

3.2.8 Particular differences to the general background inland pattern (paragraph 3.2.5) are also found in exposed coastal locations, where two different sub-groups have been defined - groups 8.1 and 8.2. These are similar to group 7, fringe mountain group, in that they comprise a heterogeneous mix of hardy boundaries, but differ in that cloddiau variants and hedgebanks are more prevalent. The two sub-groups are distinguished by the presence of earth banks and drystone walls in 8.2, partly reflecting the greater availability of suitable walling stone in these areas, although 8.2 boundaries also tend also to be located in more exposed locations than 8.1.

3.2.9 Cut drainage features, group 10, occur in low-lying wet, waterlogged or frequently inundated areas, as is to be expected. The areas are commonly land reclaimed from the sea (eg Gwent Levels, Traeth Mawr inland from Porthmadog) or beside major rivers such as the Afon Conwy.

3.2.10 Whilst drystone walls are present in a number of different associative-groups in coastal or fringe mountain areas, in some locations they are sufficiently dominant to merit characterisation as a separate grouping (group 6). As may be expected, drystone walls predominate in areas where suitable stone is readily available on the ground surface (such as much of upland Gwynedd, parts of the Brecon Beacons and craggy coastal locations). In some areas, substantial 'consumption' walls have been constructed to carry the vast quantity of stone derived from field clearance from late prehistory onwards. They are, for example, characteristic of the Ardudwy area of west Meirionnydd.

3.2.11 Three sub-groups have been derived for group 6 to reflect common associations. There is some potential for overlap between sub-groups 6.2 and 6.3 (drystone walls with cloddiau variants and hedgebanks associated with them respectively), particularly with coastal group 8.2 and fringe mountain group 7. However, it was felt that the

associations were sufficiently discrete to allow classification as specific sub-groups. The association of drystone walls with hedgerows/hedgebanks on a wide scale appears to be particular characteristic of north-west Wales, especially areas between coastal plateaux (*e.g.* Arfon) or river valleys (Dyffryn Conwy) and the high mountains of Snowdonia. In some of these areas, low drystone walling rather than a bank is commonly found as stock-proofing at the base of hedgerows (see figure 3).

3.2.12 Modern post and wire fencing is common through out all areas of Wales as it is commonly used to render older boundaries stockproof, thus avoiding more labour-intensive restoration or renovation works. In some areas it forms the single most prevalent or characteristic boundary type (for example in areas where land improvement works has led to the removal of traditional boundary types to create large open fields, or in open upland locations (group 11)).

3.2.13 In some areas a particularly unusual type of boundary may be prevalent or characteristic and, whilst not dominant in terms of numbers of boundaries present, may be so distinctive as to define the boundary group present (for example, slate fences (group 9) in some areas of Gwynedd).

3.2.14 Other boundary types, such as iron railings, are present across Wales Some have local concentrations (such as the roadside iron railings erected by the former Denbighshire County, and on parkland associated with country estates) but are never sufficiently widespread to register as a group or group component at the scale at which the atlas map has been compiled.

3.2.15 It is worth noting that there are numerous variations on the basic *clawdd* type, including stone-faced earth banks (faced on one side), stone-faced earth walls (two sides faced), 'Pembrokeshire style' of layered earth and stone and banks of varying proportions of earth and stone. It was not possible to assess the distribution of these various sub-types on the scale at which the atlas map was researched, so for the purposes of the project, all sub-types have been treated under the single heading of '*cloddiau* variants'.

### 3.3 Summary discussion

3.3.1 The basic boundary type in any area is largely dictated by a combination of underlying geology, altitude and topography: however, boundaries also have very definite historic and cultural dimensions, indicative of period and/or social/economic circumstances, and this is particularly reflected in the patterns they form.

3.3.2 Most of lowland Wales is characterised by a combination of hedges (group 1) and hedge-banks (many with trees - group 2, 3 and 4). In general, the hedgebanks tend to be bigger (and less well tended) in higher altitude areas (group 4), and there is often a complex of types (group 7) comprising a mixture of wall, banks and cloddiau in fringe areas around open moorland and open mountain land. There are many local variations within these types, but their definition awaits further work.

3.3.3 Cloddiau (group 5) are characteristic of geographically-defined areas (such as Llyn), but are often combined with drystone walls (group 6.2) to form distinctive groupings.

3.3.4 As might be expected, stone walls (group 6) are in general characteristic of upland areas and areas where there is a ready supply of good building stone (limestone in Anglesey and sandstone in the Beacons, for example). They are particularly significant in north-west Wales, while the round, bare mountain tops of mid-Wales are usually unenclosed or have modern post and wire fences (group 11)

3.3.5 Cut drainage features, such as reens and drains (group 10), are restricted to low-lying, often reclaimed, areas such as the Gwent levels, Malltraeth and the floor of the Conwy valley.

3.3.6 The map shows greater variation in types and groups in north-west Wales than elsewhere. Although the authors are better acquainted with this area and thus the data underlying the map may be somewhat biased, this is nevertheless probably an accurate picture, not least because, as a glance at a geology map shows, the area is geologically the most complex part of Wales.

3.3.7 The exposed coastal location of Anglesey and south-west Wales are also more complex in boundary terms than inland areas (group 8).

3.3.8 The boundaries present across the whole of Wales are to be found in a great variety of layouts / patterns, reflecting different processes in the history of the landscape. As might be expected, there is no direct relationship between particular patterns and topography / geology, as the former are a product of the complex interaction between society, economy, culture and landscape through time.

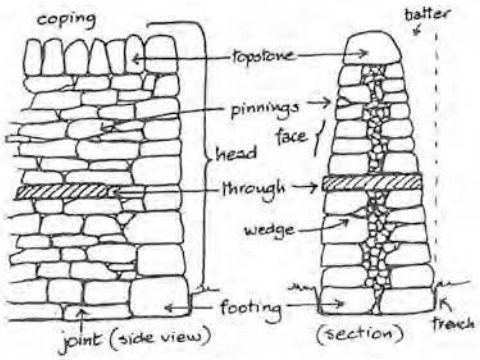
3.3.9 The patterns mapped out by boundaries in different areas are a fundamental part of the contemporary character and distinctiveness of the Welsh landscape, and are also to a greater or lesser degree indicative of the period in which they were constructed. Some initial work concerning this aspect is included below in section 4.

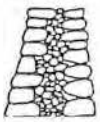
**Table 1 Boundary types**

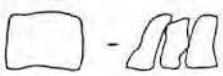
| | Type | Variants / subtypes |
|---|---|---|
| 1 | Hedgerow | Hedge with low drystone walling or boulder footings |
| 2 | Hedgerow with trees | |
| 3 | Hedgebank | |
| 4 | Drystone wall | Generic<br>Structured / unstructured; through stones, chronology<br>With post and wire<br>Coping standard blocks, upright slabs, slanting |
| 5 | Stone-faced drystone wall | |
| 6 | Single thickness drystone wall | |
| 7 | Boulder wall | |
| 8 | Orthostat-faced wall | |
| 9 | Stone slab wall | |
| 10 | Mortared wall | |
| 11 | Earth / turf bank | |
| 12 | Stone rubble bank | Stone-faced bank |
| 13 | Cloddiau variants / stone and earth banks | Stone-faced earth wall / stone-faced stone and earth wall<br>Layered stone and earth wall – e.g. 'Pembrokeshire type'<br>Stone-faced earth bank |
| 14 | Slate fence | Slate pillar with drystone walling |
| 15 | Wooden fence | |
| 16 | Post and wire fence | |
| 17 | Iron railings | |
| 18 | Cut drainage | Ditches<br>Reens<br>Drains |

**Table 2 Descriptions of boundary type**

| | |
|---|---|
| Hedgerow | Hedgerows (H) consist entirely of vegetation, sometimes planted on a small linear mound and sometimes with one or two side ditches. (*These appear in many different regional forms*). |
| Hedgerow with trees | Hedgerows often include trees as an essential part of the vegetation. (These appear in many different regional forms). |
| Hedgebanks | Hedges can also be planted on top of the banks and walls described above. (*These also appear in many different regional forms*). |
| Drystone wall | A drystone wall (DW) is constructed entirely of stone, and may be one-stone in width in part, with other parts (usually the base) two stones or more wide. (*These appear in many different regional forms*). |
| Stone-faced stone wall | The stone faced stone wall (SFSW), sometimes also referred to as a *clawdd*, consists of two stone faces with a stone core. It may be impossible, during a survey, to distinguish this from a SFEW. |
| Single wall | The single wall (SW) is constructed entirely of stone and all parts of the boundary are only one stone wide. (*These appear in many different regional forms.*) |
| Boulder wall | The boulder wall (BW) is a boundary consisting of large stones placed in a line with little or no super-structure now in evidence. Boulders are usually massive in size. |
| Orthostat-faced wall | The orthostat-faced wall (OW) is a boundary consisting of large, earth-fast stones placed in a line, often curvilinear in plan, with smaller boulders or stones as infill to raise the height off the ground. |



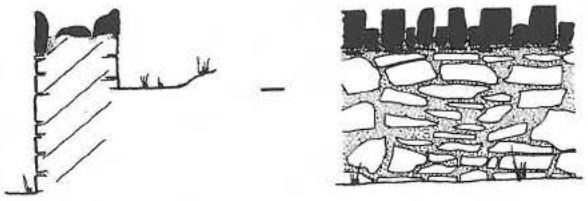


Stone slab wall

Similar to the above, but with larger slabs.

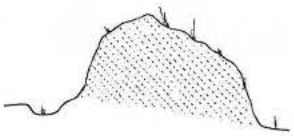
Mortared wall

Commonly found as demesne or estate boundary walls



Earth / turf bank

The earth or turf bank (E/TB) is made entirely or earth or turf. It may have one or two side ditches. Many of these appear now as very denuded and low features.

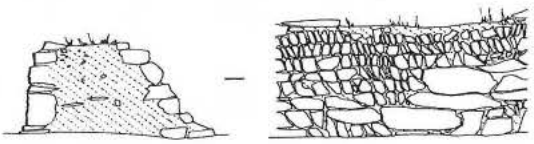


Stone-faced stone bank

The stone faced stone bank (SFSB) is a stone bank with stone facing on one side. It may have a ditch on one side.

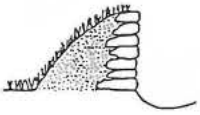
Stone-faced earth wall

The stone-faced stone wall (SFSW), or *clawdd*, consists of two stone faces with an earthen core. (*The faces can appear in different patterns, including herringbone, which may be regional*).



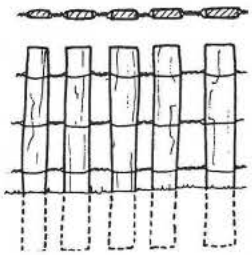
Stone-faced earth bank

The stone-faced earth bank (SFEB) is an earthen bank with stone facing on one side. It may also have a ditch on the facing side.



Slate fence

Upright slate pillars dug into the ground by about 600mm and normally wired together. The spacing between the slates varies from a few inches to up to several yards; for close spacings the wire may be looped around the slate or put through holes drilled in it, while for greater spacings drilling is usual and the wire may be strained.



| | |
|---|---|
| Wooden fence | Many traditional boundary forms use hard wood as a major constituent (WF). |
| Wooden fence | Many traditional boundary forms use hard wood as a major constituent (WF). |
| Post and wire fence | This boundary (PWF), essentially modern, may appear on its own or in combination with another boundary type. |
| Iron railings | For example, as present alongside many of the former Denbighshire County Council roads (Richard Kelly pers. comm.). |
| Ditches / reens | Common on the Gwent Levels and other low-lying coastal and estuarine areas of Wales, as well as in the flood-plains of the larger rivers. |

Boundary type 1 - hedgerow

Boundary type 2 - hedgerow with trees

Boundary type 3 - hedgebank

Boundary type 4 - drystone wall

Boundary type 5 - stone-faced drystone wall

Boundary type 6 - single thickness drystone wall

Boundary type 7 - boulder wall

Boundary type 8 - othostat-faced wall

Boundary type 9 - stone slab wall

Boundary type 10 - mortared wall

Boundary type 11 - earth/turf bank

Boundary type 12 - stone rubble bank

Boundary type 13 - 'cloddiau' variants

Boundary type 14 - slate fence

Boundary type 15 - wooden fence

Boundary type 16 - post and wire fence

Boundary type 17 - iron railings

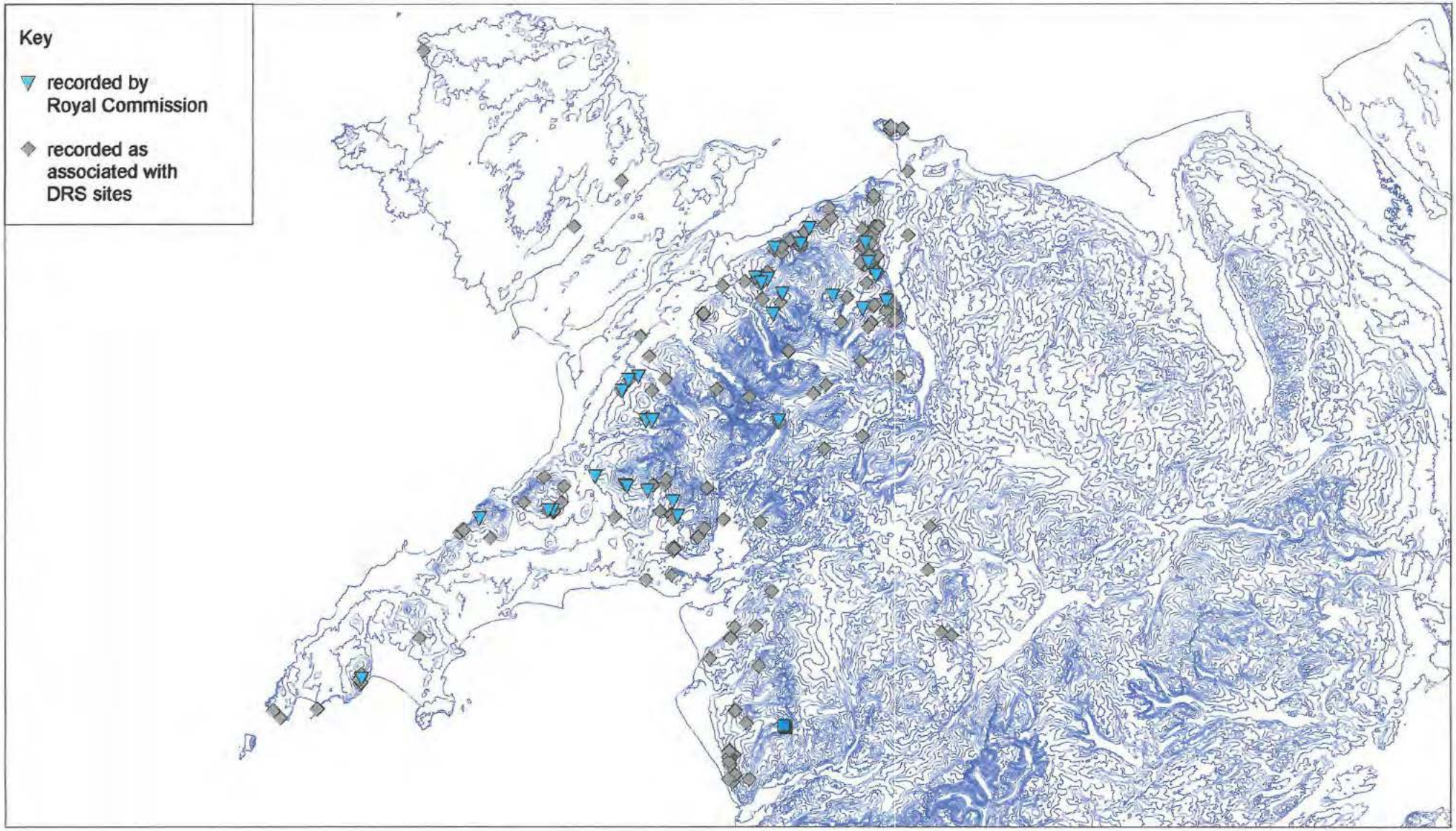
Boundary type 18 - cut drainage (ditches and hedges)

**Table 3 Boundary groups**

| Number | Description |
|---|---|
| 1 | Hedges with occasional low hedgebanks (generally few hedgerow trees) |
| 2 | Hedges and low hedgebanks with occasional hedgerow trees |
| 3 | Low to medium sized hedgebanks, commonly with hedgerow trees |
| 4 | Medium to large hedgebanks and earth banks (some substantial) with occasional hedgerow trees |
| 5 | Cloddiau variants predominant |
| 6 | Drystone walls predominant; variations |
| 6.1 | Drystone walls only |
| 6.2 | Drystone walls and cloddiau variations |
| 6.3 | Drystone walls, hedgebanks and hedges |
| 7 | Fringe mountain land variants – mosaic strong boundaries: fringe mountain land, heads of valleys running into uplands where resources varied / transitional zones. Cloddiau variants, drystone walls, hedgebanks, earth banks, with post and wire frequent |
| 8 | Coastal boundary groups |
| 8.1 | Hedges, hedgebanks and cloddiau variants |
| 8.2 | Earth banks, cloddiau variants, drystone walls and some hedgebanks |
| 9 | Slate fences (commonly in association with drystone walls) |
| 10 | Cut drainage features, including ditches, reens and open drains (often in association with hedges) |
| 11 | Open / unenclosed uplands (moorland and mountain land), includes areas of relict boundaries (especially drystone walls and earth banks) indicating abandonment of former field systems: some modern post and wire fencing is present in these areas |

**History & Archaeology Aspect** hierarchical classification system

| Level 1: structure | Level 2: land use | Level 3: pattern | Level 4: Historic landscape detail |
|---|---|---|---|
| Rural environment | Agricultural | Fieldscape | Relict (pre-medieval) |
| | | | Medieval strips |
| | | | Ridge and furrow |
| | | | Water meadow |
| | | | Evolved / irregular |
| | | | Regular (small) |
| | | | Regular (medium) |
| | | | Regular (large) |
| | | | C20th prairie |
| | | | Other fieldscape (specify) |
| | Non-agricultural | Horticulture | Allotments/gardens |
| | | | Nurseries |
| | | | Orchards |
| | | | Other horticulture (specify) |
| | | Woodland | Ancient woodland |
| | | | Non-ancient woodland |
| | | | Managed woodland (e.g. Coppice) |
| | | | Plantation |
| | | | Forestry (modern) |
| | | | Other woodland (specify) |
| | | Marginal land | Moorland/mountain |
| | | | Unenclosed/open |
| | | | Scrub (unmanaged) |
| | | | Cliff top |
| | | | Dune/foreshore |
| | | | Peat cutting (non industrial) |
| | | | Derelict land (unreclaimed) |
| | | | Other marginal land (specify) |
| | | Reclaimed land | Brownfield sites |
| | | | Reclaimed wetland |
| | | | Other reclaimed land (specify) |
| | | Water & wetland | Natural lakes & watercourses |
| | | | Estuary |
| | | | Coastal wetlands/salt marsh |
| | | | Bog |
| | | | Other wetland (specify) |
| Built environment | Nucleated settlement | Nucleated proper | Planned settlement - medieval |
| | | | Non-planned settlement - medieval |
| | | | Planned settlement - c19th/20th origins |

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Distribution of known relict field systems in north-west Wales

Fig. 2

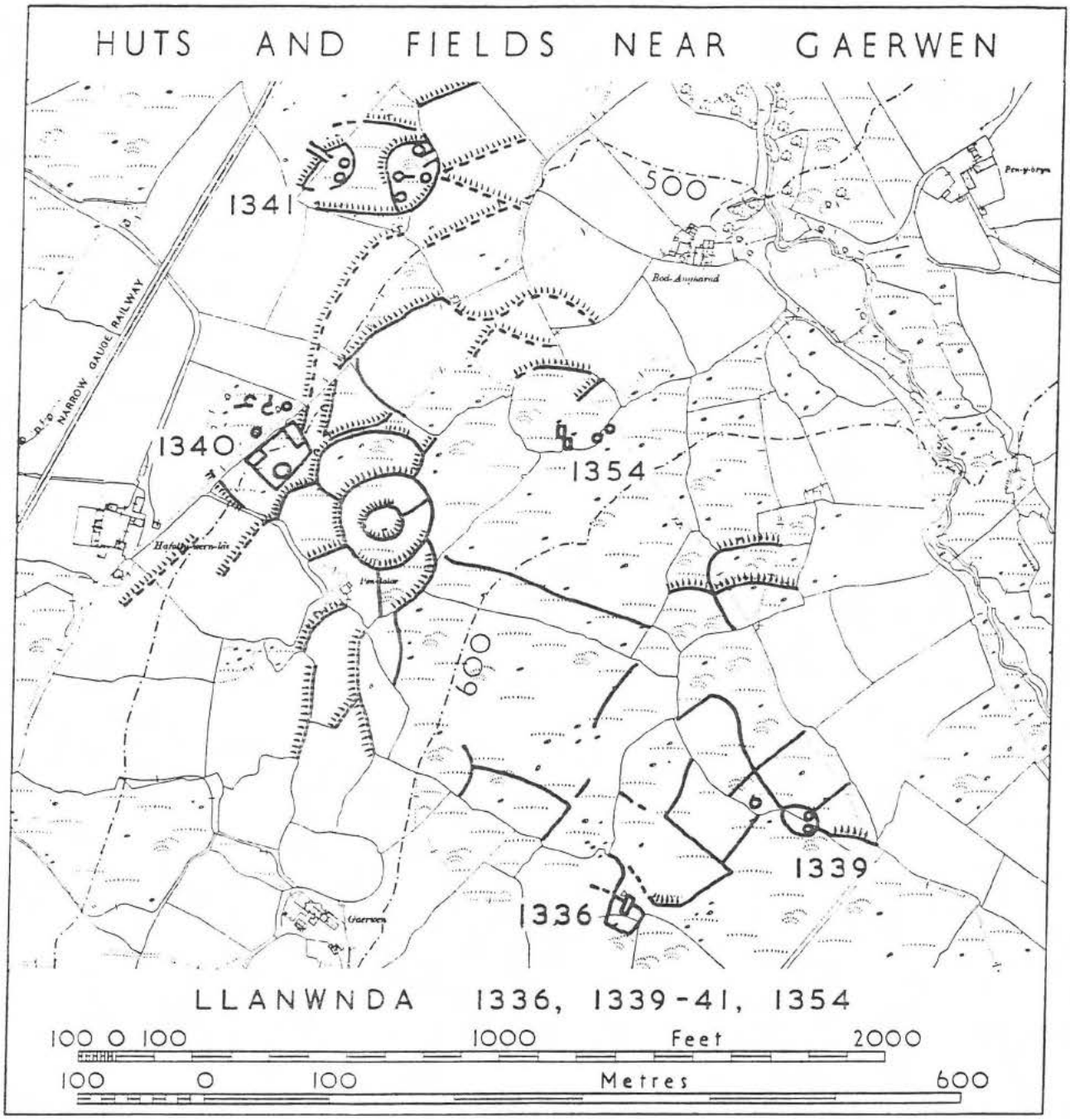



Figure 3 An example of a partially relict field system near Rhostryfan. Note the circular patterns (field walls still in use) and the relict boundaries (rectangular). The system incorporates drystone walls, banks and lynchets.

Fig 3a - Aerial view of the same site (looking south-west)

# 4 Gwynedd case studies I: boundary patterns

## 4.1 Introduction

4.1.1 In order to look in more detail at the types of field boundary patterns that are evident in the Welsh landscape in a systematic manner, it was decided to use the *LANDMAP* History and Archaeology Aspect hierarchical classification system as (a) it already exists, (b) it is already being used in landscape characterisation projects and will continue to be used in the future, and (c) it therefore has the greatest potential for recording and analysing field boundary data across Wales.

4.1.2 Level 4 (the most detailed level of *LANDMAP* to which most local authority-based projects should aspire) contains ten different field pattern types which can be used to define character areas (see figure 1), and which between them are intended to cover all the possible field pattern types to be found in Wales (see above, paragraph 2.3). They are relict (pre-medieval), medieval strips, ridge and furrow, water meadow, evolved/irregular, regular (small), regular (medium), regular (large), 20th century prairie and 'other' (to be specified).

4.1.3 Using local knowledge and a print-out of field boundaries in north-west Wales from Ordnance Survey Landline data, an example of eight of the ten types ('other' was excluded for the time being, and there is no ridge and furrow recorded on the SMR for the area) was chosen and a print-out was produced showing the pattern in more detail (see figures 3 - 10).

4.1.4 The examples chosen were:

relict (pre-medieval) - various (figures 2 and 3)
medieval strips - centred on Morfa Nefyn (SH288401) (figure 4)
water meadow - centred on River Conwy (SH780665) (figure 5)
evolved/irregular - centred on Rhostryfan (SH500580) (figure 6)
regular (small) - centred on Carn Fadryn (SH281341) (figure 7)
regular (medium) - centred on Llangefni (SH441754) (figure 8)
regular (large) - centred on Bodwyr (SH461685) (figure 9)
20th century prairie- centred on northern Llyn (SH165290) (figure 10)

4.1.5 Unfortunately these maps are not to the same scale, so comparison (particularly between the 'regular' types) are rather difficult to make.

4.1.6 These areas were examined in some detail using a series of different maps and aerial photographs and were compared with other similar areas from across north-west Gwynedd. Some interesting points have arisen which can be summarised as follows.

## 4.2 Relict (pre-medieval) fields

4.2.1 A distribution map (figure 2) shows the distribution of recorded 'relict' field systems in north-west Wales. The two data sets used to produce this map are (i) deserted rural settlement sites with recorded associated field systems (type unspecified but assmued to be at least partialy relict) (brown diamonds), and (ii) field systems recorded by the Royal Commission in their Caernarfonshire Inventories (1956, 1960 and 1965) alongside relict prehistoric and medieval settlement sites (blue triangles).




Scale 1cm:150m

Fig. 4




Scale 1cm:150m

Fig. 5

4.2.2 Plotted here against contours, not surprisingly the vast majority are on marginal land around the lower sea-facing slopes of Snowdonia and down the west side of the Conwy Valley - classic 'hut group territory'. They can also be seen to correspond closely with either (i) unenclosed mountain pasture (particularly along the northern slopes of Arllechwedd or abode Bethesda) or (ii) the distribution of circular and irregular (modern) fields (see irregular/evolved below and figure 3). Boundaries in relict systems (*i.e.* which by definition are no longer in use) are usually banks, lynchets or stone walls (or sometimes a combination of two or more of these - boundary types 4-8 and 12). Almost without exception, all recorded relict field systems are to be found in association with hut groups and/or deserted rural settlements, but as they were recorded as secondary to settlement sites this is unsurprising.

4.2.3 Interestingly, a brief examination of the Royal Commission plans and aerial photographs shows that most of the relict fields are rectangular or square in shape, whereas fields which are still in use and are in association with hut groups and/or deserted rural settlements are circular or irregular in shape (see figure 3 and below). It might be that the circular patterns stem from actual prehistoric settlement sites, or closely-associated in-fields, rather than field systems.

### 4.3 Medieval strips

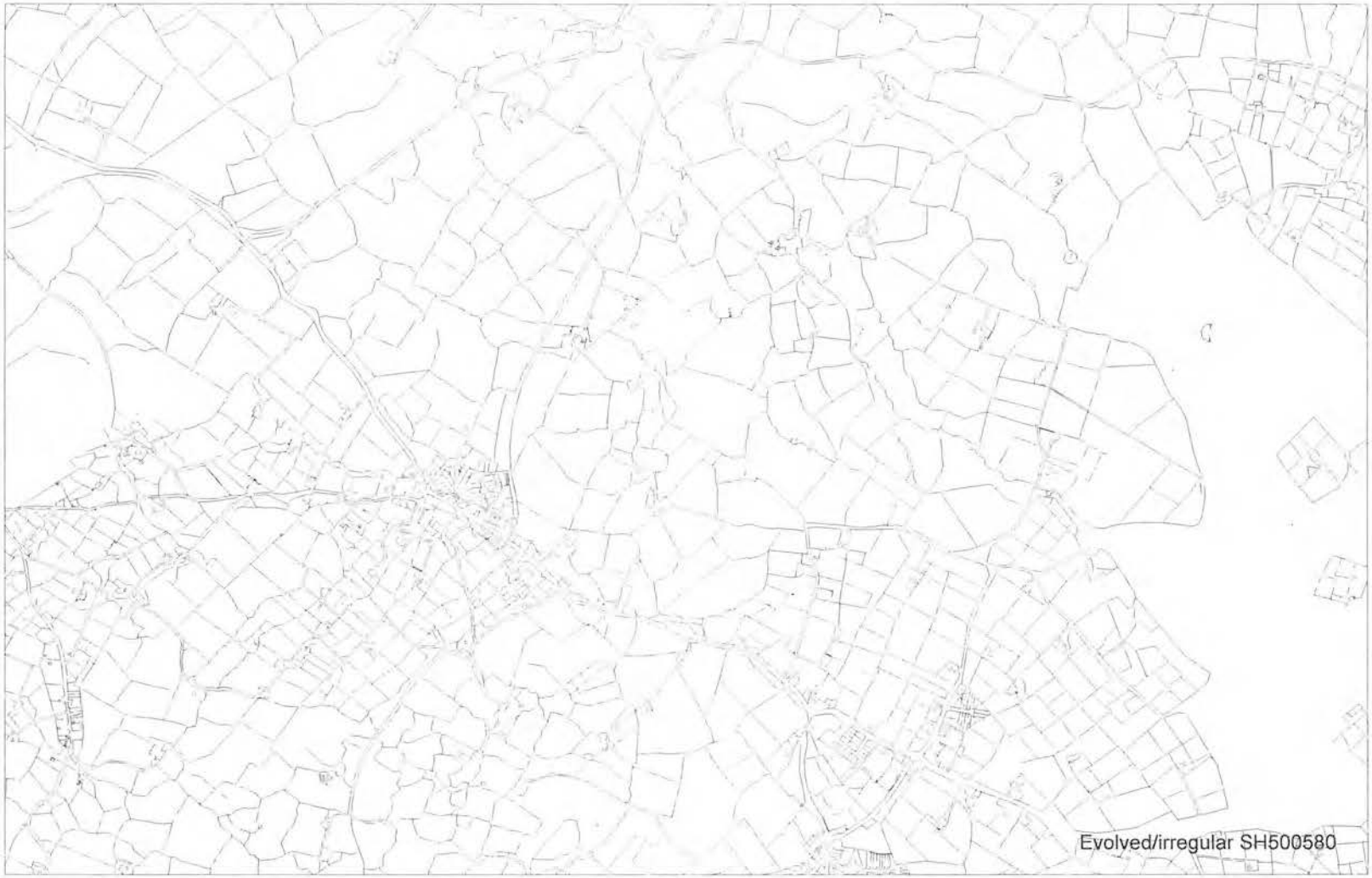
4.3.1 North-west Wales appears to have only two main concentrations of fossilised medieval strip fields: the area around Uwchmynydd at the tip of the Llyn (SH150255), and another area centred on Morfa Nefyn (SH288401) (figure 4), also on Llyn. Both of these are associated with known medieval townships (Uwch Sely and Morfa respectively), and the recent characterisation work has shown that many early tithe and estate maps still show areas of quillets which have either been fossilised by later boundaries (represented on such maps by solid lines) or are still in open plots under different ownership (represented on maps by dotted lines). Many quillets were being 'exchanged' in the middle of the 19th century. Most of these areas of 'quillets' are also associated with former medieval townships, such as Dwygyfylchi and Deganwy.

4.3.2 The strips around Morfa Nefyn demonstrate consolidation of holdings, probably after the 15th century (the boundaries therefore date from this later period): interestingly, they are (and possibly always have been) confined to land which was in the former borough of Nefyn.

4.3.3 Typically, all the boundaries that exist today are *cloddiau* (stone-faced earth banks - boundary type 13): they appear to be of similar size (c. 2.5 - 3ft high) and construction, and some have a ditch running along one or both sides. There is limited local stone in the fields themselves, although most of the banks are faced with medium-sized smooth stones. Many of the boundaries have small scrub trees or gorse growing along the top. Granite quarries exist on the other side of Nefyn which were quarried from the 1840s, and stone was used in the construction of the small 19th century enclosure walls on Mynydd Nefyn - see below (regular (small)).

### 4.4 Water meadow

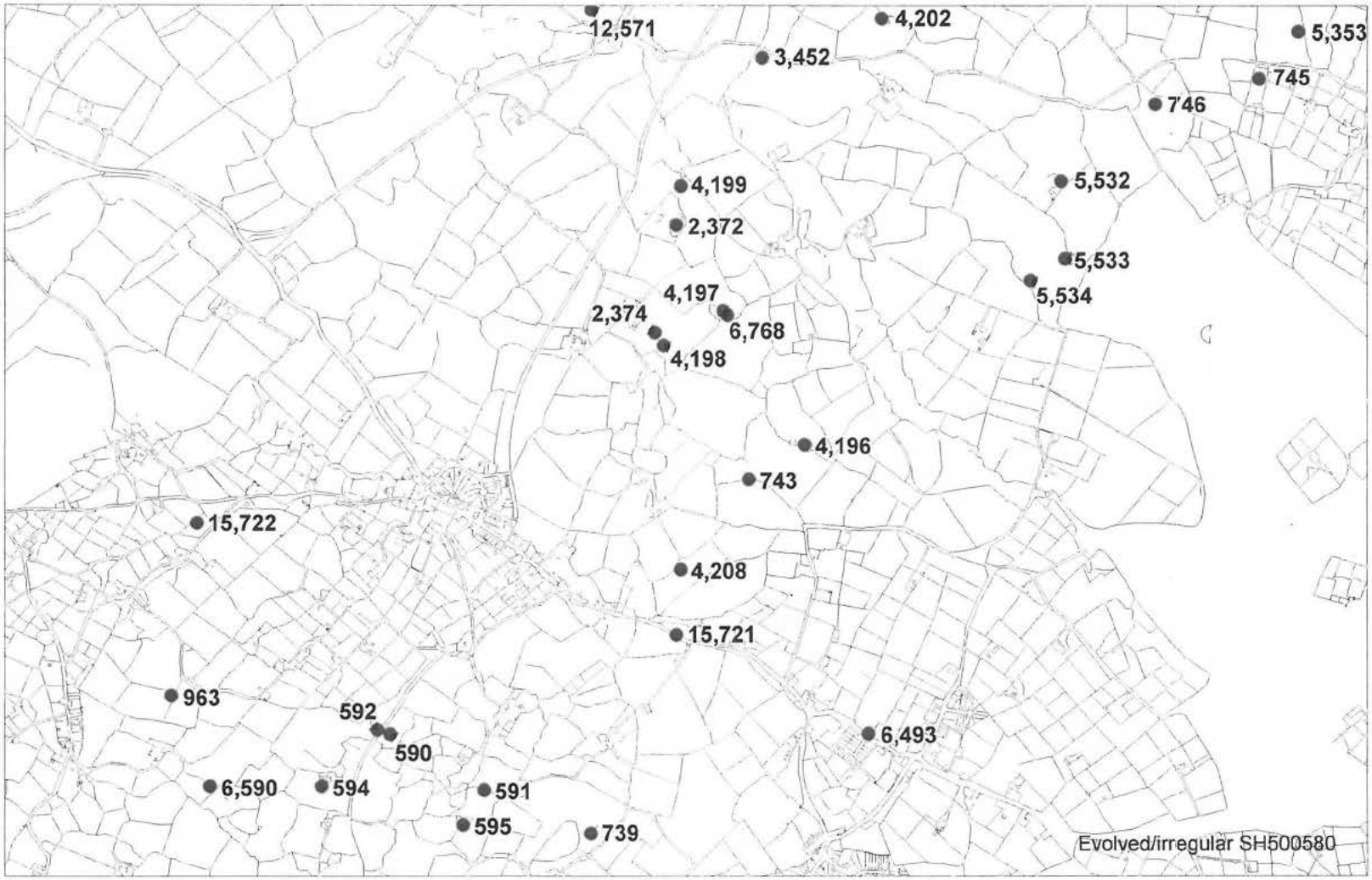
4.4.1 There are few (if any) water meadows in Gwynedd, in the strict definition of the term. However, comparable systems exist in a couple of areas, one of which is centred on the Afon Conwy (SH780665) (figure 5). Here, the field pattern is of large, formally rectangular enclosures defined by massive drainage ditches, sometimes with a small bank and/or hedge with trees running alongside (boundary type 18). Other areas which






Scale 1cm:150m

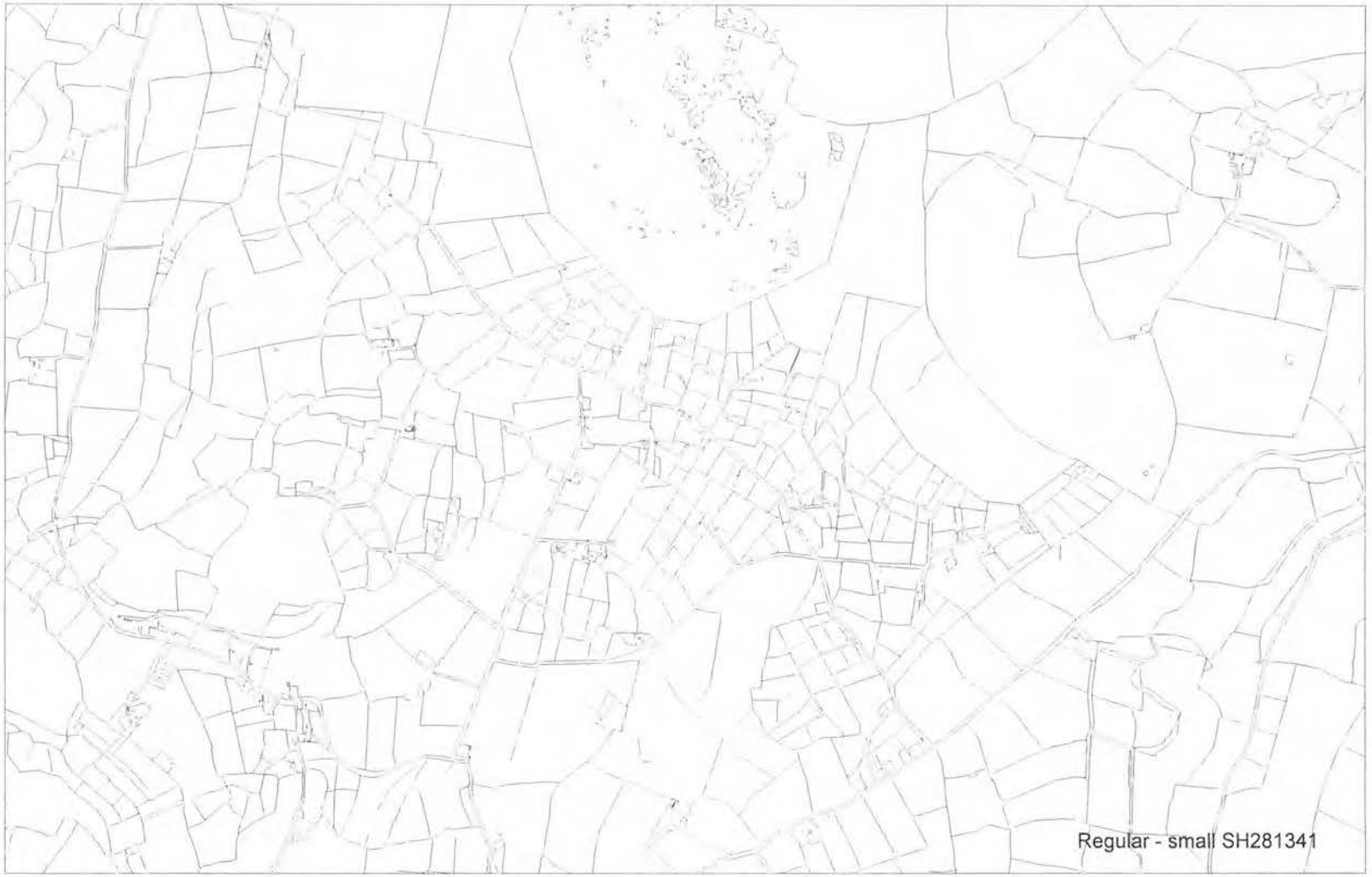
Fig. 6a






Scale 1cm:150m

Fig. 6b






Scale 1cm:150m

Fig. 7

have been reclaimed from the sea have a similar appearance (Malltraeth, on Anglesey, Traeth Mawr, near Porthmadog and the Dysynni valley): they are very much 18th, 19th and 20th century landscapes.

### 4.5 Evolved/irregular

4.5.1 The evolved/irregular fields (figure 6a) near Rhostryfan are circular or partially-circular in shape and pattern and are in an area which has a high concentration of relict late prehistoric/Romano-British hut group settlements (and relict fields recorded by the Royal Commission, 1960 - see above: and figure 6b). Similar field patterns exist elsewhere, usually in marginal (upland fringes) parts of Gwynedd, such as Llyn, Arllechwedd, Conwy Valley and Ardudwy, and almost always (although examination of the evidence has not been exhasutive) in association with late prehistoric settlements (and often with relict medieval settlements).

4.5.2 Typically the boundaries of these patterns (systems?) are stone walls, some of which can be seen to have at least two periods of construction, and some of which are on lynchets (boundary types 4 - 8, occasionally overlying type 12). Often the lower levels of the walls are either large, earth-set boulders (orthostats) or now appear as a rubble bank of small stones on a lynchet, over which a more 'standard' drystone wall has been constructed.

4.5.3 The association of these irregular/evolved field boundary patterns with prehistoric settlement data clearly demonstrates that the (current) pattern is determined by past settlement - permanent prehistoric settlement has led to a permanent residual boundary footprint in the landscape.

### 4.6 Regular (small)

4.6.1 One of the most distinctive features of the Gwynedd landscape are the patterns of regular (small) fields which dominate many of the marginal upland areas, such as that centred on Carn Fadryn (SH281341) (figure 7). These small fields are typical of areas of upland and other waste which were enclosed at the beginning of the 19th century, and they occur in many places in west Caernarfonshire. Rhoshirwaun towards the end of Llyn is the best lowland example (SH195292), where a series of fields were created during the enclosure of the Rhoshirwaun Common in 1812-6, but other classic examples are on the slopes of Mynydd Nefyn, Mynydd Rhiw, Mynytho (above Abersoch), all on Llyn, and around Nazareth, Rhostryfan and Rhosgadfan further east.

4.6.2 The creation of most of these enclosures is are well-documented: some were piecemeal and have left behind small green areas comprising a couple of fields and a *tyddyn* in otherwise unenclosed upland (the best examples of these are above Waunfawr and in the Conwy Valley above Rowen): other were more extensive and covered many acres of upland (figure 7). All are associated with a settlement pattern consisting of small vernacular cottages.

4.6.3 The walls are similar in appearance: they are usually massive, drystone constructions (sometimes over 6ft high - they are by definition in exposed places whereby protection from the elements would have been an essential requirement) of single thickness (boundary types 4 and 6). Some of those on Mynydd Rhiw are obviously built on earlier stone banks or lynchets, which are similar in appearance to supposed prehistoric boundaries described above. As there is extensive evidence for earlier (prehistoric and medieval) occupation on Mynydd Rhiw, this is not entirely surprising. It would appear




Scale 1cm:150m

Fig. 8




Scale 1cm:150m

Fig. 9

that the mountain slopes were enclosed and farmed in earlier peirods, and then abandoned before being re-enclosed. A study of this area would be particularly interesting.

### 4.7 Regular (medium)

4.7.1 Little work has been done on field patterns which can be categorised as 'regular (medium)'. However, there is some evidence to suggest that these areas represent small farms which were consolidated in the later medieval and post-medieval period (as was the example near Llangefni (SH441754) shown on figure 8). They were not owned by large estates and thus were not affected by the great improvements that were carried out on those from the end of the eighteenth century.

4.7.2 To some extent, these patterns could be described as the 'default type' of pattern, typical (and covering most) of lowland areas of Gwynedd which were outside the control of the large estates. The types of boundaries represented in these patterns varies enormously, from stone walls to hedgebanks, and it is in areas where this pattern dominates that local distinctiveness will be important in defining and managing local landscape character.

### 4.8 Regular (large)

4.8.1 Many of the large estates of the area (Nanhoron, Madryn, Newborough, Vaynol, Penrhyn, Buckley, Bodorgan etc.) as well as the lesser houses, carried out great improvements to their land from about the end of the 18th century onwards. The example in figure 9 (centred on Penhyddgan (SH298385), Llyn) was formerly part of the Madryn estate, but there are many others. These improvements, which involved re-alignment of roads and trackways and the creation of large, new fields with often grid-like regularity, have had a lasting impact on the landscape.

4.8.2 In many places, the former extent of estates can be mapped by these field patterns and the use of distinctive field boundary features (most notably gates), as well as farm buildings, and these boundaries can be relatively easy to date. Figure 9 shows a regular grid-pattern of fields centred on a new drive-way which was created soon after 1793 by Thomas Parry Jones, who set about improving the Madryn Estate when he inherited it: he put up new farm buildings at the same time which can be closely dated.

4.8.3 Again, although the patterns are distinctive, the boundary types involved vary immensely according what raw material was available locally. The examples in figure 9 are earthen *cloddiau,* but elsewhere drystone walls might have been built (many of the distinctive massive upland walls, such as those above Rowen in the Conwy Valley which was part of the Caerhun estate, which runs dead straight for miles are a product of estates). The same estate might have constructed *cloddiau* in the lowlands, but drystone walls in upland areas.

4.8.4 There is a particularly good example of a landscape transformed by a combination of 19th-century estate improvements and the coming of the railways along the low-lying coastal plain between Penrhyn and Llanfairfechan, in northern Gwynedd. The pattern now is of rigidly-aligned rectangular fields, many centred on the railway, whereas 18th century estate maps of this area show a completely different pattern of small, irregular fields and trackways.

## 4.9 20th century prairie

4.9.1 The field patterns in some non-marginal areas, principally on the Llyn and Anglesey, have been radically altered since the Second World War due to increased mechanisation and the use of ever-larger machinery in the fields. This has led to what is commonly referred to as '20th century prairie landscapes'. The example in figure 10 is centred on northern Llyn (SH165290) and is fairly typical. Most of the 'traditional' (but in fact in most cases probably no older than c. 200 years) boundaries have been removed and, with the exception of road-side hedges, hedgebanks or *cloddiau*, replaced with post-and-wire fences.

# 5 Gwynedd case studies II: boundary types

## 5.1 Introduction

5.1.1 The second case study involved examining the distribution of individual boundary types in selected areas. Tir Gofal farm surveys were used as a means of assessing the potential of area-specific intensive boundary surveys. The aims were:

- to see to what extent the broad categories derived for the boundaries were supported at the local level on the ground:
- to assess the contribution of boundary variation to local distinctiveness at a farm scale:
- to record boundary condition as a statement of the state of boundaries on the respective areas, and to both feed into and stimulate consideration of management requirements: and
- to develop a methodology for recording boundary character and condition across Wales using the Tir Gofal scheme.

## 5.2 Survey methodology

5.2.1 Due to the scale of the project, study sites were limited to two farms, Tan Dinas, Llanddona, Beaumaris (SH587817 - map 1) and Bryn Farm, Aberdaron (SH192264 - map 2). Standard rapid walkover surveys of the complete holding were conducted at each, in both cases carried out in a single day.

5.2.2 A version of the table of boundary types produced during the earlier stages of this project (GAT report no. 394, May 2001) was developed for use as a rapid boundary recording guide with acronyms for types and prompts for criteria to be recorded (figure 11). Abbreviated descriptions of each boundary (or boundary section where significant) were made onto a drawing film overlay covering a survey base map. These notes were subsequently transcribed and are presented below. Figures 12 and 16 list the boundaries recorded on the two farms using the abbreviations contained in figure 11.

5.2.3 Basic analysis of the results was carried out to determine the composition of the boundary assemblage on each of the holdings, and to assess the condition of different boundary types. A slightly more detail approach was adopted at Tan Dinas, to record boundary furniture and elements of (wall) construction detail.

Figure 11 Glossary of boundary types and sub-types for rapid survey work

| *Abbreviation* | | *BOUNDARY TYPE* |
|---|---|---|
| H | | Hedgerows |
| HB | | Hedgebank – this category may not be necessary as could be described via individual components |
| H(T) | | Hedgerows with trees |
| (H) | | Indicates sites topped with hedges |
| DSW | | Drystone walls ('DW' looks to similar to 'PW' to be used as annotation on survey maps). |
| SFDW | | Stone faced drystone wall |
| SW | | Single thickness walls (general category with subtypes) |
| | SDW | Single thickness drystone wall |
| | BW | Boulder walls |
| | SW | Slab wall |
| OW | | Orthostat wall |
| MW | | Mortared walls |
| EB | | Earth / turf banks |
| EB(H) | | Earth / turf bank topped with hedge |
| SCB | | Stone core banks |
| SB | | Stone rubble banks |
| SFB | | Stone-faced bank (general category with subtypes) |
| | SFSB | Stone-faced stone bank (1 side faced) |
| | SFEB | Stone-faced earth bank (1 side faced) |
| | SFSyB | Stone-faced stony bank (1 side faced) |
| LSEB | | Layered stone and earth banks – examples found in Pembrokeshire |
| SFEW = Clawdd | | Cloddiau (earth banks faced with stone on either side) – NB regional variations in definition of clawdd so not precise enough to signify a specific boundary. |
| L | | Lynchets – often indicative of soil build up behind a field boundary |
| SFL | | Stone-faced lynchets / Revetted lynchet |
| Rev | | Revetments |
| SF | | Slate fences |
| WF | | Wooden fences |
| PW | | Post & wire fences |
| IR | | Iron railings |
| D | | Ditches |
| Reen | | Reens |
| Dr | | Drains |
| HH | | Ha has |

| | *SUFFIXES* |
|---|---|
| (rel) | Eg relict hedgerows and walls |
| (g.o) | Grown out / over-mature hedgerow |

| Abbreviation | SUBTYPE CATEGORIES | SUBTYPE CLASS |
|---|---|---|
| Dimens | Dimensions | Height (stated) |
| | | Width (stated) |
| Cope | Capping type / coping type | With cope stones |
| | | Without cope stones |
| | | Laid slabs |
| | | Slanting slabs |
| | | Upright slabs |
| | | Blocks |
| | | Slanting blocks |
| | | Upright blocks |
| | | Dressed cope stones |
| St-grad | Stone grading | Rubble |

| | | |
|---|---|---|
| | | Surface gathered |
| | | Quarried |
| | | Ashlars |
| | | Orthostats |
| | | Rough slate blocks |
| | | Sawn slate blocks |
| St-size | Stone size | Small stone |
| | | Medium stone |
| | | Large stone |
| | | Massive |
| Cons | Construction | Uncoursed / random |
| | | Coursed irregular |
| | | Coursed regular |
| Geol | Geology | Limestone |
| | | Red sandstone |
| | | Slate rubble |
| | | Slate slab |
| | | Shale |
| | | Gritstone |
| | | Granite |
| | | etc |
| Cond | Condition | Active boundary – excellent |
| | | Active boundary – good |
| | | Active boundary – reasonable |
| | | Active boundary – poor |
| | | Active boundary – gappy |
| | | Redundant boundary – gappy |
| | | Redundant boundary – tumbled |
| | | Redundant boundary – footings |

Wall furniture:

| | |
|---|---|
| Boundary furniture | Gates |
| | Stiles |
| | Sheep creeps / tyllau defaid |
| | Water 'throughs' |
| | Rabbit / game 'smoots' |
| | Stone pillar gateposts (worked stone) |
| | Stone slab gateposts (unworked / roughly quarried) |
| Gate types | Iron - in situ (plain) |
| | Iron - in situ (decorated / ornate) |
| | Iron - reused (plain) |
| | Iron - reused (decorated / ornate) |
| | Galvanised |
| | Wooded - traditional |
| | Wooden - modern mass produced |
| Stile types | stone - squeeze stile |
| | stone - step-stile |
| | stone - step-over stile |
| | stone - rung stile |
| | wood - ladder stile |
| | wood - ?traditional stile |
| | wood - sqeeze stile |
| | wood - gate |

## 5.3 Area One – Tan Dinas, Llanddona, Beaumaris

5.3.1 Tan Dinas is a small coastal holding on the east side of Anglesey, comprising mainly improved land, but with some areas of scrub. Dominating the north west part of the holding is the former Tan Dinas, or Dinorben, Stone Quarry, which has a range of associated features, both down by the sea, and in the improved fields on the cliff top. The land has been intensively farmed but despite this archaeological remains of the prehistoric period survive, probably associated with the scheduled ancient monument of Din Silwy (Bwrdd Arthur) Hillfort (SAM A024). Orthostatic walls, some forming enclosures, indicate an ancient agricultural regime. The discovery of a possible group of prehistoric huts with walls and a terrace (PRN 16154) is exciting as they had not been previously recorded on the Regional Sites and Monuments Record. Tan Dinas is also interesting for the range of field boundary types present - walls, hedges, earth banks, stone-faced earth banks and cloddiau were recorded (see figure 12 below).

Figure 12. Boundaries at Tan Dinas

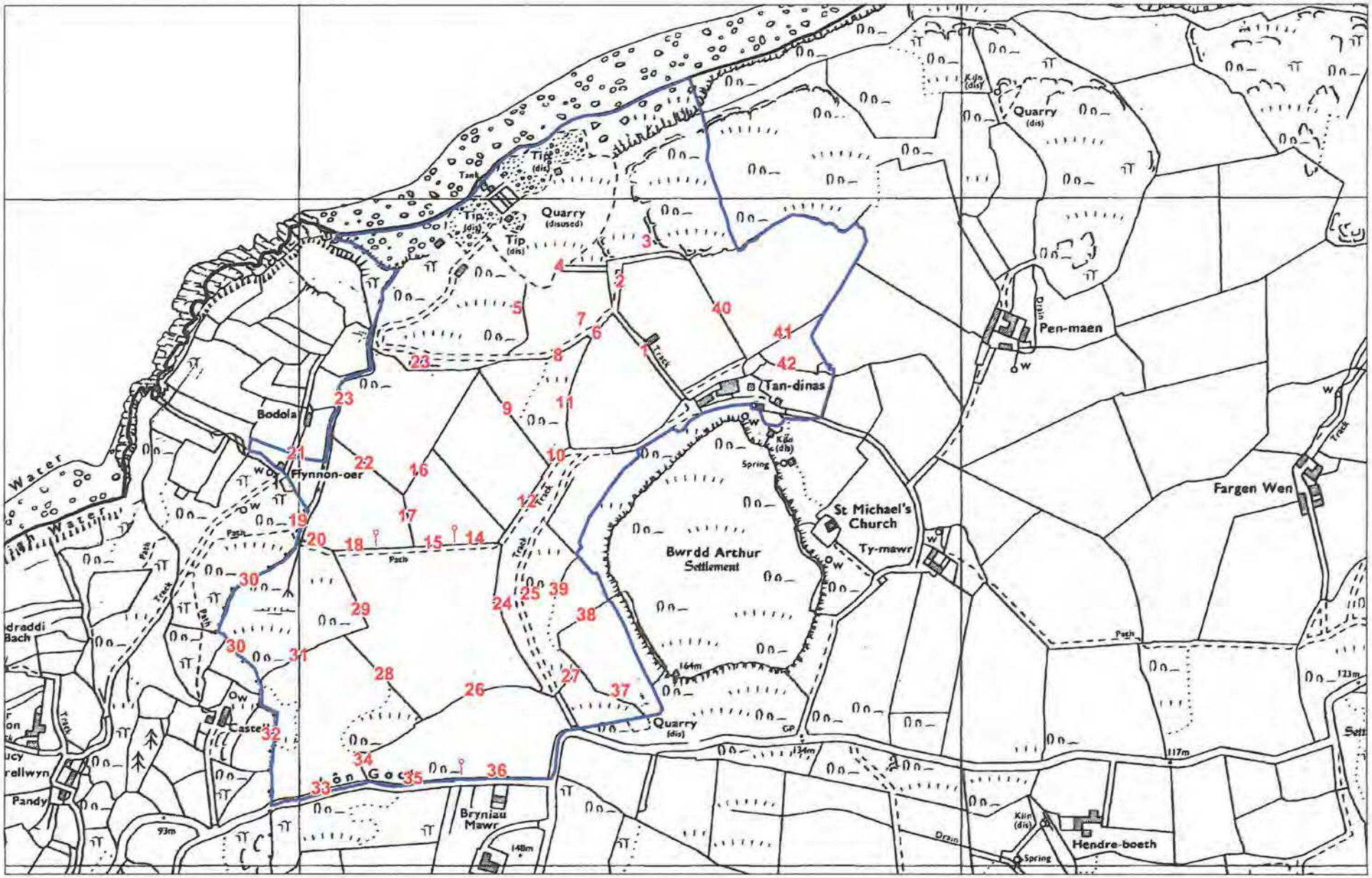
| BOUNDARY NO. | *BOUNDARY TYPES* | *NOTES* |
|---|---|---|
| 1 | DSW, H (Hawthorn & Rose – sparse), PW (either side) | Up to 1m high, 0.5m wide. No copes. Rough quarried stone blocks, small-medium. Uncoursed/tumbled. Lyncheting on W side c.0.4m |
| 2 | H (thorn - grown out), PW (E side) | Alongside limestone revetting |
| 3 | H (thorn - grown out), PW (S side) | Boulder & earth bank beneath, hedge up to 1.2m high |
| 4 | PW with rails occasionally used as posts throughout length | Rails from quarry or incline |
| 5 | H (thorn – grown out), PW (E side) | |
| 6 | DSW, H (N side – grown out) | Up to 1.4m high. For stone size and grade see No. 1 above, slanting block copes. Lyncheted by c.1m in places on S side. Hedge originally laid. Work underway to clear thorn scrub, rather severe but some attempt made to retain original laid stubs. Has a stone step stile (2 steps) WF-1. |
| 7 | H (grown out) | Traces of former laying |
| 8 | H (grown out) | Traces of former laying, and boulder & earth bank beneath. Spur to SW rejoins line of 6. Is this old line associated with hut group 4? Large water-worn boulder within spur. Bank of spur up to 1m high and 1m wide. Prehistoric boundary? Runs along top scarp above hut group. |
| 9 | EB, PW, D | Grassed-over, irregular stone throughout, slight ditch either side. Recent PW fencing either side via Tir Gofal grant. Some thorn survives on top, probably originally a crest hedge. DSW for 10m at S end. Has limestone gatepost (slab set on end) with eroded runnels WF-2. |
| 10 | Rev, H, PW | Revetting for track to S, but possibly line of earlier wall? Boulders throughout, uncoursed, mix of medium/large stone. H (thorn) to E and more bank-like. PW along length. |
| 11 | DSW, PW | A continuation of No.6. Height 0.75-1m, 0.5m wide, lynchet upslope (E side), to just below full height in places. S end, some large boulders in fabric, possibly an earlier phase. Mostly tumbled (as per 6 in central section) but to copes at S end, where copes mixed laid slab and block. Uncoursed rough small/medium stone, PW along length. Could be repaired. Has limestone gate pillars WF-3, S example has drill holes. |
| 12 | DSW, PW | Up to 1.3m high. Upright block copes, random fabric, mostly small to medium stone, some larger blocks occasionally at base. PW along length. Has iron estate gate 1.5m high, WF-4. |
| 13 | EB | Relict, no PW fences. 2.5-3m wide and c.0.75m high, grassed over. Single limestone gatepost c.40m from. Is overlain by boundary No. 12 at S end, but does not continue, (track immediately to S), so may have been built at around same time. |
| 14 | DSW | Tumbled DSW up to 1m high. Stone in DSW mixed, small, medium and large. On same alignment as No. 15. |
| 15 | SFEB, D, PW | Faced with rubble on N side, 1m high, 2m wide. Ditch to S. PW above. |

| | | |
|---|---|---|
| 16 | EB, PW | Circa 0.5m high and 2m wide. PW at top. |
| 17 | DSW, PW | Standard, rough block copes, small–medium stone, c.1.2m high. Slightly lyncheted on W side, stream to E side. Two limestone slab pillars with shot holes present, WF-5. |
| 18 | SFEB | E half stone faced both sides, W half stone faced on S side. |
| 19 | EB, PW | Stream to E. |
| 20 | EB, DSW | Low earth bank with low drystone wall, height 0.75m. WF-6, two limestone slab pillars. |
| 21 | H (grown out), PW | PW either side |
| 22 | DSW, H (thorn - grown out), PW | Wall up to 1.2m high and 0.75m wide, gappy. At S end on W side there is revetting/lyncheting to near full height. Thorn hedge on W side. Has two limestone pillars and an iron estate gate 2m wide and 1.25m high, WF-7. |
| 23 | H (grown out) | |
| 24 | DSW, PW | 1.2m high, 0.6m high, medium to large stone, uncoursed, occasional blocks at base. Upright block copes, gappy. PW on either side. One limestone pillar, WF-8. |
| 25 | SFEW | Relict clawdd running towards Bwrdd Arthur. |
| 26 | SFEB, D, PW | Faced on N side. 2m wide, 0.75m high. Small – medium uncoursed stone. Stone facing to prevent erosion by prevailing wind/weather, from sea. Ditch to S side, PW atop. |
| 27 | SFEB | Relict. |
| 28 | SFEB, D | Faced on E side, c.2m wide and 0.75m high, small – medium uncoursed stone. Ditch on W side. N half of E side also has ditch. |
| 29 | DSW | Tumbled, c.0.75m high and 0.5m wide. WF-9, iron estate gate c.2.2m wide, re-hung on wooden posts. |
| 30 | SFEB, D, PW | Where eroded, large blocks of stone visible inside. Ditch to S. New PW on top. |
| 31 | EB, PW, H | Occasional boulders visible, hedge on top. |
| 32 | DSW, H (grown-out), PW | Tumbled DSW up to 0.75m high. |
| 33 | SFEB, PW, H | Stone-faced on N side, PW on N side, H mechanically cut. |
| 34 | DSW, PW | Ten metres tumbled, some coping at N end. Two PW fences. |
| 35 | SFEB, H, PW | Hedge atop stone-faced earth bank. Hedge gappy, mechanically cut (along roadside). |
| 36 | DSW, H, PW | Up to 1m high. Hedge gappy, mechanically cut (along roadside). Two limestone pillars WF-10. |
| 37 | SFEW, DSW, H | Collapsed/eroded clawdd, c.0.75m high. DSW and H in part, at N and E. |
| 38 | DSW | Less than 1m high, mostly tumbled, some slanting block copes remaining, orthostats at E end. |
| 39 | EB | Low EB with gorse. |
| 40 | DSW, PW | |
| 41 | DSW, PW | |
| 42 | DSW, H (grown-out), PW | Tumbled DSW. |

5.3.2 The survey was successful, and the technique and methodology was seen to work. All of the boundaries could be categorised and recorded according to the types already identified. Sufficient data was recorded on the forms to allow an assessment of their type, construction and condition, and to underpin fuuture management (and subsequent monitoring).

5.3.3 The following figures (13 -15) show the composition of boundary types (figure 13), and their condition (figures 14 and 15) at Tan Dinas. The vast majority (35, 67% - figure 13) were either dry stone walls (18) or hedgerows (17), with a few earth banks, stone-faced earth banks and stone-faced earth walls. Most boundaries were in good condition, being fenced or 'still 'active' - only 13% were relict.

5.3.4 The boundary pattern represented on the farm is fairly consistent and falls within *LANDMAP* level 4 category 'regular - medium', implying a post-medieval date for the layout of the fields. This pattern is generally consistent with the farms to the east and south (although those to the west are different and may represent an 'older' layout).




**Field boundaries at Tan Dinas**

**Map 1**

**Fig. 13 Composition of boundary types at Tan Dinas, Llanddona**

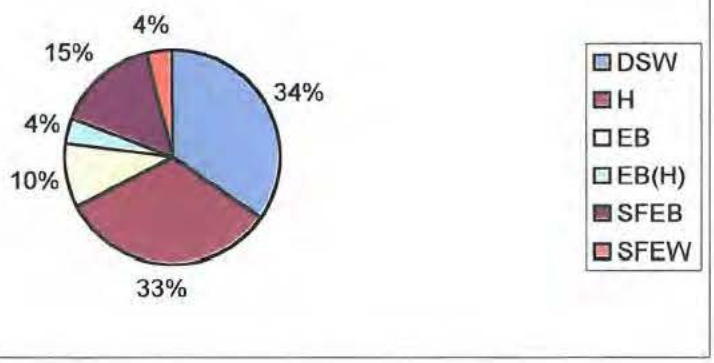



**Fig. 14 Condition of boundaries - Tan Dinas, Llanddona**

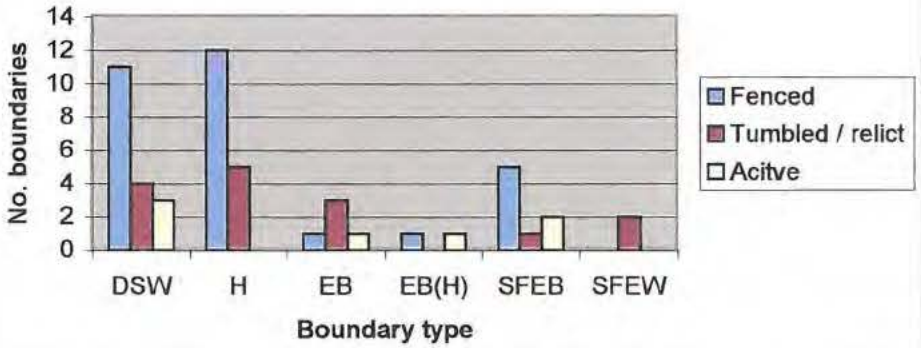
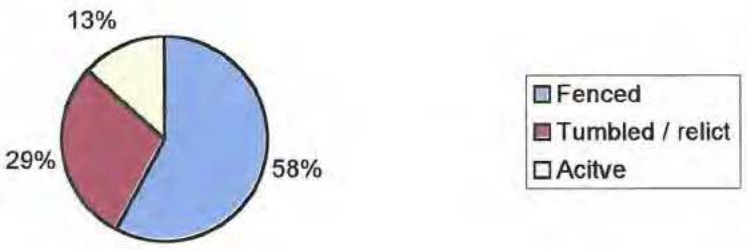



**Fig. 15 Overall condition (all boundary types), Tan Dinas, Llanddona**



5.3.5 Interestingly, a previously-undiscovered prehistoric hut group was recorded in the corner of the field south-east of wall 8, where the adjoining boundaries are curvilinear in their footprint and orthostatic in construction.

## 5.4 Area Two – Bryn Farm, Aberdaron

5.4.1 Bryn Farm is a coastal holding typical of south Llyn. The land is improved pasture. The archaeological interest of the holding is predominantly post medieval, including a derelict small holding, a series of small quarries (presumably for pits for getting building stone) and a holloway. The field boundaries form a significant component of the historic landscape of the farm. There are some fine 'cloddiau' (stone-faced earth walls), stone-faced earth banks and earth banks with ditches and hedges on the farm. At the time of Tir Gofal management preparation the applicant expressed a desire to remove some of these boundaries to increase the size of the fields, a threat common in this area of Llyn.

Figure 16. Boundaries at Bryn Farm

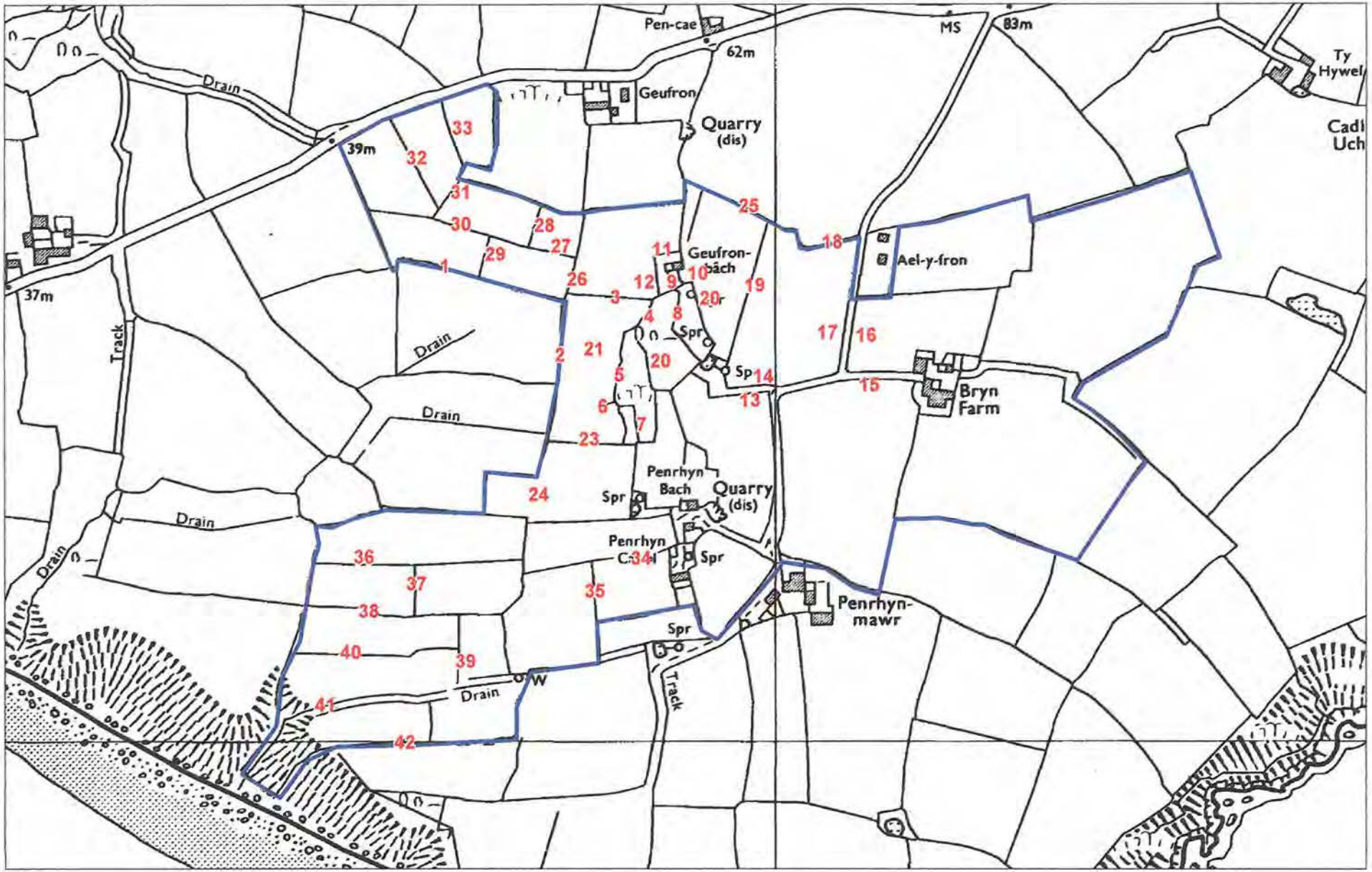
| BOUNDARY NO. | *BOUNDARY TYPES* | *NOTES* |
|---|---|---|
| 1 | EB, D, PW, H (gorse & thorn, grown out) | Ditch to N, PW on top of bank. Boundary c.1m high, 2.5m wide. Grassed. |
| 2 | EB, D, PW, H (gorse & thorn, grown out) | Ditch on both sides, PW on top of bank. Boundary c.1m high, 2.5m wide. Grassed. |
| 3 | EB, H (gorse, grown out), D | Relict, ditch on S side. Height c.0.8m, width c.2.5m. Grassed, some earth visible, erosion by livestock. |
| 4 | SFEW, H (gorse, grown out) | Relict, low, up to 0.75m high, 1m wide. Small and medium uncoursed rubble. Gappy, but interesting small clawdd, should not be disturbed. |
| 5 | SFEW | Relict, low, up to 0.75m high, 1m wide. Small and medium uncoursed rubble, gappy. Stone apparently absent from boundary as heads S, remnant earth bank only visible, interesting boundary, should not be disturbed. Stone scattered to S of feature 1 may have been dislodged from this boundary. Livestock have damaged it in places. What looks like a narrow out-turned entrance through the boundary is formed by large blocks of limestone set into the ground protruding westwards beyond the line of the boundary. Another possibility is that this feature is the last trace of the foundation of an E-W boundary that has been removed. A slight linear feature with possible ditches either side is visible (field boundary 21), and there is a gap in the ditch on the E side of boundary 2 where one would expect boundary 21 to have met it. |
| 6 | EB | Relict, low, ploughed down, c.1.2m wide, less than 0.5m high. Short stub remains. |
| 7 | EB | Relict, very low, difficult to see amongst dead bracken. |
| 8 | SFEW, H (gorse, grown out) | Relict, 0.75m high, 0.5m wide. Small and medium rubble. Grass on top. |
| 8a | SFEB, H (gorse, grown out) | Relict, stone on N side of boundary (facing into path), small and medium rubble. 0.75m high, 0.5m wide. Grass on top. |
| 9 | SFEB | Relict. Faced on W side, creating a terrace to the E. Stone is small and medium rubble. Max. height is 0.8m. There are two stone gate posts (limestone and ?slate), although one is out of position. Grassed. |
| 10 | SFEB, PW, H (gorse, grown out) | Relict. Faced on W side, creating a terrace to E. PW is old and broken. Up to 1.2m high on W, 0.5m on E, 1m wide. Stone gate posts present. Grassed. |
| 11 | SFEW | Relict. Width, c.1.2m, up to 0.8m in height. Stones are small, medium and large blocks. Grass on top. |
| 12 | SFEB | Relict. Up to 0.8m high, 1.8m wide. Grassed. Faced on E side with small and medium rubble, uncoursed. Stone gate posts present, one out of position. |
| 13 | SFEB, H (gorse, grown out) | Relict. Faced on W half of N side (small, roughly coursed rubble), the E half of the boundary appears to be just an earth bank, grassed. 1.8m wide, 1.2m high on N side |
| 14 | SFEB, H (gorse, grown out) | Nice section at corner (a), outside of corner well faced with small, uncoursed rubble. Larger, angular stone at (b), different type, recent alteration/repair? S face of boundary faced. Grass on top. |
| 15 | SFEB | Large, fine quality clawdd, up to 2m high from lane. Stone facing grassed over in |

| | | |
|---|---|---|
| | | places. (Photographed). |
| 16 | SFEB | Large, fine quality clawdd, up to 2m high from lane. Stone facing grassed over in places. |
| 17 | SFEB | Large, fine quality clawdd, up to 2m high from lane. Stone facing grassed over in places. |
| 18 | EB, H (gorse, grown out), PW | Grassed. |
| 19 | PW | |
| 20 | SFEW | (N section running NE-SW only) Relict, up to 1.2m high, 0.5m wide. Small uncoursed rubble facings. Grass on top. |
| 21 | Removed. | Slight linear feature visible with signs of ditches either side, there is a gap in the ditch on the E side of boundary 2 where one would expect boundary 21 to have met it. |
| 22 | EB | Relict, sections missing, overgrown. |
| 23 | EB | Relict. |
| 24 | Removed. | Very slight linear feature visible. |
| 25 | EB, H (gorse, grown out), PW | Grassed. |
| 26 | PW, H (gorse, grown out) | |
| 27 | Removed. | |
| 28 | Removed. | |
| 29 | Removed. | |
| 30 | Removed. | |
| 31 | Removed. | |
| 32 | Removed. | |
| 33 | Removed. | |
| 34 | EB, D | Relict, ditches on both sides, grassed. |
| 35 | EB, D | Relict, ditches on both sides, grassed. |
| 36 | EB, D, H (gorse, grown out) | Relict, ditches on both sides. Grassed, though some erosion visible. Gaps where gateways once were. Large, impressive boundary, c.3m wide (with ditches), 1.5m high from base of ditch. Should not be disturbed. |
| 37 | Removed. | |
| 38 | EB, D, H (gorse, grown out), PW (old) | Relict, ditches on both sides. Grassed, though some erosion visible. Gaps where gateways once were. Large, impressive boundary, c.3m wide (with ditches), 1.5m high from base of ditch. Should not be disturbed. |
| 39 | Removed. | |
| 40 | Removed. | |
| 41 | EB, H (gorse, grown out), D | Small ditch on S side. Up to 1m high and 1.5m wide. Grass covered. |
| 42 | EB, D, PW | Slight ditch on N side, c.1.2m high and c.1.5m wide. Grass covered. |

5.4.1 The survey was successful, and the survey technique was again seen to work. All of the boundaries could be categorised and recorded according to the types already identified. Sufficient data was recorded on the forms to allow an assessment of their type, construction and condition, and to underpin fuuture management (and subsequent monitoring).

5.4.2 The following figures (17 -19) show the composition of boundary types (figure 17), and their condition (figures 18 and 19) at Bryn Farm. There were only half the number of field boundaries (26) that were present at Tan Dinas. Almost all of them were a form of earth bank (or *clawdd*), stone-faced earth bank or stone-faced earth wall. Most of the earth banks were in good condition and most of the boundaries were fenced and 'active'.

5.4.3 The boundary pattern represented on the farm is fairly consistent and again falls within *LANDMAP* level 4 category 'regular - medium', implying a post-medieval date for the layout of the fields. This would seem to be confirmed by the type of boundary - mostly *cloddiau* (see above, paragraph 4.3.3): it is possible that most if not all extant *cloddiau* are post-medieval in date. The relatively small size of most of the fields in the western part of the area suggest small farm, rather than estate, improvement and consolidation.




**Field boundaries at Bryn Farm, Aberdaron**



Map 2

**Fig. 17 Composition of boundaries, Bryn Farm, Aberdaron**

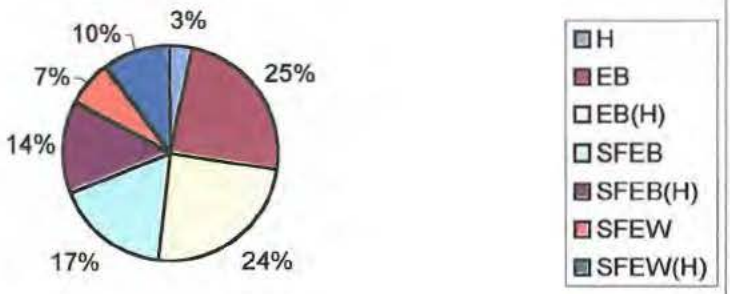



**Fig. 18 Condition of boundaries, Bryn Farm, Aberdaron**

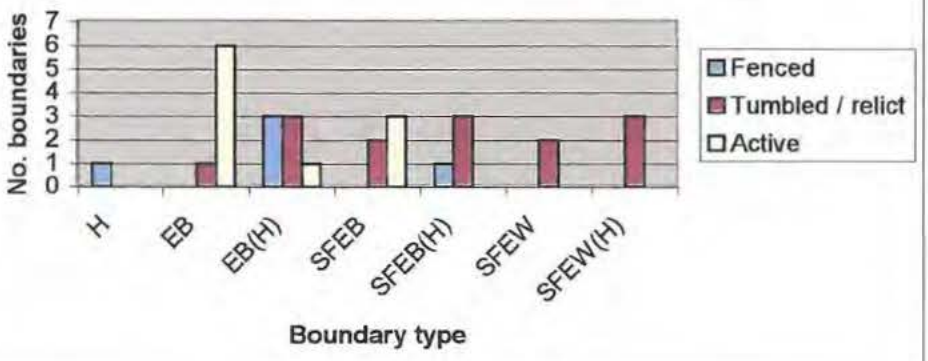
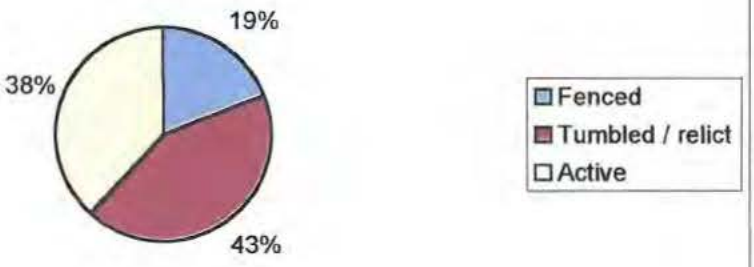



**Fig. 19 Overall condition (all boundary types), Bryn Farm, Aberdaron**



5.4.4 However, two other small-scale patterns are represented on the farm. The eastern part has large fields associated with *LANDMAP* level 4 category '20th-century prairie fields'. Of more interest, however, is a central area which includes boundaries 4, 5, 8 and 20 which are stone-faced earth walls (atypical of the farm as a whole). The pattern formed by these walls is also not typical of the farm as a whole and includes some boggy ground. It is likely that these represent 'unimproved' boundaries of an earlier date.

## 5.5 General conclusions

5.5.1 These two Tir Gofal farm visits were a pilot exercise for undertaking detailed boundary studies in a systematic manner. They were successful, and the technique is considered to represent an effective way of carrying out boundary survey. Such surveys could be carried out by archaeologists, but also by others with an interest and certain expertise in landscape, such as Tir Gofal project officers.

5.5.2 The fact that all the boundaries in a given local area are recorded systematically allows us to put forward some initial suggestions as to their date and function, and also to begin to formulate ideas about landscape change at a local (and by extension regional) level in a way which has not been possible to date. The true worth of much of the data will only be apparent when more, similar farm surveys have been carried out and our knowledge of the resource has been substantially increased.

5.5.3 Detailed boundary survey complements other techniques of analysis and explanation, such as landscape archaeology, documentary research, historical geography and social history.

5.5.4 In practical terms, Tir Gofal whole farm surveys are an extremely effective way of recording boundaries. They cut down on time needed for survey as only a single owner has to be contacted: permission will always be forthcoming for access as it forms (and informs) part of an existing scheme to which the landowner is committed: they allow the whole of the boundary to be properly examined, which is essential for accurate recording: they give a local context to each boundary.

5.5.5 The information collected on type, construction and pattern feeds straight back into positive management and allows long-term monitoring..

5.5.6 This work certainly moves forward the idea of engaging archaeologists and others in thinking about and documenting field boundaries in an effective, practical way. The next problem is in dealing with the vast amounts of data from an SMR point of view!

# 6 Management issues

## 6.1 Management problems

6.1.1 This section is intended to present a series of practical issues connected with the management of traditional boundaries. It is by no means exhaustive, but is intended as a fisrt step towards guidance for 'best practice'.

6.1.2 Field boundaries suffer from various decay processes which can be summarised as follows.

| *Main Categories* | *Processes* | *Key Variables* |
|---|---|---|
| Geomorphic | Soil Creep<br>Solifluction<br>Talus Creep<br>Rockslide<br>Mudflow<br>Fluvial | Relationship to slope<br><br>Nature of substrate: bed-rock<br>alluvium<br>glacial drift<br>peat<br>Vegetation cover |
| Climatic | Wind<br>Snowfall<br>Freeze-thaw<br>Desiccation | Microclimate<br><br>Aspect<br><br>Nature of substrate: bed-rock<br>alluvium<br>glacial drift<br>peat |
| Biological | Burrow activity<br>Sheep jumping<br>Humans climbing<br>Tree disturbance<br>Management history | Earthworm density<br>Rabbit and mole density<br>Sheep behaviour and stocking rates<br>Proximity of trees to walls<br>Value of wall to land manager<br>Vegetation cover<br>Nature of substrate: bed-rock<br>alluvium<br>glacial drift<br>peat |

(after T Lord)

## 6.2 Suggestions for good management practice

6.2.1 A standard specification for walling repairs has been established in England by DEFRA and there are general guidelines, but these are not universally appropriate as there are too many regional variations of which they do not take proper account. It is more important to produce (and enforce) general guidelines which promote the retention of local distinctiveness. All contractors construct or repair boundaries (especially drystone wall) using slightly different techniques, and this should also be borne in mind when agreeing a specification for a repair. It is also essential that Tir Gofal, a national scheme, is 'locally aware' and takes account of local stylistic differences instead of adopting an invidious standard of 'one types suits all' approach.

6.2.2 It is important to ensure that any rebuilt wall matches the existing in as much detail as possible and that any repair should be recorded and would be identifiable to the trained eye.

6.2.3 When boundaries (particularly walls) are targeted for repair and conservation, it might be advantageous in some instances to leave gaps at one or both ends to allow farm machinery easy (and non-destructive) access to fields. Wherever possible, walls should not be used as quarries for repairs unless there is no practical alternative: where this is inevitable, the footprint of the robbed wall (usually two courses of foundations stones protruding above the ground) should be retained. Recording is essential in case wall furniture is lost.

6.2.4 Gates may often have to be widened, in which case gateposts should be re-positioned and the opportunity to record the section through the boundary should be taken (if practical). In the case of gateposts, there is a question of whether should we replace like for like or use modern substitute materials. As we accept that landscapes change, we should accept replacements, but they must be suitable and blend in with what already exists. Every case should be looked at on its own merits but, generallly for example, concrete is not a suitable replacement and that timber gate posts are better.

6.2.4 Where boundary-top wiring (or use of post-and-wire fencing) is required because of sheep this should be accepted: increasing the height of existing boundaries should be avoided as it would be out of keeping with the character of the landscape.

## 6.3 Management and conservation guidelines

6.3.1 The following management and conservation guidelines from are based on those developed for the National Trust following the survey of their Upper Wharfedale estate.

*General guidelines:*

- Walls, damaged or broken stoups etc should be repaired using traditional techniques.
- Repair and/or rebuilding should be in keeping with the structure and form of the original or immediately adjoining lengths, so as to maintain the overall effect and typology of the boundary.
- The presence of any wall furniture (both open and closed, in use or redundant) should be noted and respected.
- Boundary maintenance should retain historic patterns of enclosure (eg primary boundaries).
- Repair and/or rebuilding should take note of and respect any underlying or associated archaeological sites or structures.
- New fencing should not replace walls, or sections of walls, which can otherwise be rebuilt or reinforced with suitable stone. Any new fencing should be set slightly away from existing wall lines, to prevent damage to historic alignments and footing.

- Stockproof or near stockproof boundaries should be maintained, if they become agriculturally redundant. Boundaries which are upstanding but with gaps should be considered for renewal where they are *c*.80% or more complete, and where the bulk of the fallen stone is present. Walls which are less than *c*.80% complete tend to have a lower priority, because of the significant amount of investment needed for repair, unless there is a real agricultural requirement for a stockproof boundary.

- Stone should not be robbed from heavily collapsed or redundant walls where they contribute to the general patterning of enclosure development, and provide physical evidence for that enclosure.

- Lower courses of significantly collapsed or redundant walls should be retained, to maintain the historic alignment.

- Fallen stoups should be re-erected or reset (where practical), in original position or in widened gateways.

- Details of ownership and responsibility for repair should be clarified.

- Records should be kept of repair and maintenance.

- A monitoring programme should be put in place.

- Guidance notes could be isued for owners/tenants/contractors.

# 7 Conclusions

7.1 Traditional field boundaries are important features, both for the information they contain as historical artefacts in themselves and for their role in defining local landscape character. They represent the earliest surviving evidence for organisation and layout of fields and other landscape features such as woods, parks and estates. In marginal areas, such as north-west Wales, some boundaries survive from prehistory as visible landscape features, while below ground evidence (for example post holes and ditches) can survive elsewhere.

7.2 The project has confirmed that a series of different boundary types exists, in Wales and in Gwynedd, and that it would be possible to map their extent and distribution. As a first stage in this process, a preliminary glossary of types and a distribution map have been drawn up which will be subject to further consultation. Although it is generally accepted that physical examination of boundaries is generally a poor dating tool, since their structure is locally specific and has changed over time with repairs, work in Gwynedd has confirmed that we can start to assign broad periods to different patterns of boundary types, based largely on map evidence and association.

7.3 In general terms, the locations and extent of the different types are largely dictated by underlying geology and topography, so that hedgerows and banks are predominant in lowland areas (mainly valley bottoms with enclosed pasture), larger banks with fewer hedges exist on intermediate hill slopes (steep or rolling slopes of, again, mainly enclosed pasture), and either drystone walls or simply modern post and wire fences (depending on the local geology) dominate those upland areas which are enclosed. However, most geographical areas are characterised by a combination of types, for example hedgebanks, ditched walls, cloddiau with hedges and so on.

7.4 Changes in construction methods over centuries (some of which will have been dictated by economic need) have also led to regional and local differences in boundary styles. Cultural and aesthetic factors have also played an integral part in the development of locally distinctive boundary types and features, including local traditions of hedge maintenance such as laying, and the planting of hedgerows containing cultivated shrubs such as privet and laburnum. The presence of drystone walls constructed of milled slate blocks is a characteristic feature of the slate quarrying areas of north west Wales, for example.

7.5 Recording boundaries is a complicated issue and can take place at a series of levels. Historic landscape characterisation is a useful tool for determining the contribution of boundaries to landscape character, and for recording general patterns and styles. A morphological approach is a useful first-step guide to more detailed boundary survey, but ideally some historical/documentary research is needed to back up field survey data.

7.6 It is difficult to put a commercial and competitive price on detailed boundary recording (rather than characterisation work), but in general sufficient resources should be allocated to carry out a suitable level of survey, depending on what is required. The basic survey unit is a length of wall which has consistent dimensions, profile and structural characteristics. Recording all the boundaries in even a small area (a farm, for example) is time-consuming. An alternative method of survey could be to sample small lengths of boundary, rather than record the full length of each boundary section. This might allow for more extensive areas of survey. When recording boundaries, it is important that that patterns, junctions and structures (building types and material) are all examined in detail. Recording condition and vulnerability, as well as landscape value, will allow future management to be prioritised.

7.7 English Nature has recently produced a very thorough and useful Hedgerow Survey Handbook which should be used for that purpose: it also contains information and procedures which are more widely applicable to surveying boundaries of all types and is a useful starting point for any project concerned with detailed boundary recording. It is available on their website at www.english-nature.org.uk/pubs/publication.

7.8 Boundaries also have an increasing socio-economic value, as demonstrated by the significant role they play in Tir Gofal and other environmental improvement schemes. It is particularly important, therefore, that good information about them is available as, apart from ensuring the survival of those boundaries on farms signing up to schemes, it also raises the positive image of the historic environment in general among the farming communities who are best placed to care for them.

7.9 The study of field boundaries is still in its infancy, and needs now to be given a higher priority.

# 8 Recommendations

8.1 This pilot study has demonstrated that the study of field boundaries is potentially a very fruitful area of work that can add considerably to our knowledge of the development of the landscape as well as informing future patterns of change. At the same time, the historic landscape characterisation reports currently being undertaken by the Welsh Archaeological Trusts have clearly demonstrated the importance of field boundaries in forming the character of many rural areas. It is clear that there is a need to continue and develop this area of study, and to this end a series of recommendations for further work is detailed below.

8.2 There is a need to move beyond the examination of individual boundaries, to look at them in their immediate context and in particular at the patterns they form in the landscape. There is, therefore, an urgent need to define and map (digitally, in a retrievable form) the variety of patterns formed by traditional boundaries, as this is a crucial part of our understanding of both the historical processes (including land tenure, age/date) which have brought them about, and their contribution to the appearance of the present countryside. This should be possible using historic landscape characterisation, the *LANDMAP* level 4 categories and OS Landline data as a starting point.

8.3 There is a considerable amount of information already published or in manuscript form about traditional field boundaries. Numerous bibliographical references have been collected during the course of the background research for this project (and listed in the report on the first phases of the project). However, it was beyond the scope of this project to carry out a detailed literature review: this should form a priority for the next phase of the project. This would include reviews of antiquarian and historical agricultural writings, which initial investigations have demonstrated to be a rich source of information on the range of boundary types prevalent in Wales, as well as their traditional management. The results would inform and refine the development of the glossary of boundary types, as well as the advice given on their future management.

8.4 The role of the archaeological development control process in recording (and preserving) field boundaries need to be reviewed. For example, development control staff at Cambria Archaeology (Dyfed Archaeological Trust) request recording work on all boundaries affected by pipeline and other linear development schemes, although this is not currently a standard approach throughout Wales. Some major highway schemes also include some recording of boundaries, but again this is not standardised. The first phase of this pilot project recommended that detailed field boundary recording should accompany all large-scale developments (such as new road schemes, large housing estates, industrial estates and other infrastructure projects), and the results be made widely available. The establishment of consistent, agreed procedures and guidelines across the Welsh Archaeological Trusts (as well as Cadw and CCW) for recording field boundaries is seen as a priority.

8.5 There is a need to review and analyse the role that field boundaries play in the Tir Gofal scheme, so that advice on their management within the all-farm schemes can be better targeted.

8.6 Whilst legislation and initiatives such as Tir Gofal are vital steps in the conservation of traditional boundaries, the majority nevertheless fall outside their remit. Conservation of the majority of boundaries through sympathetic management relies upon the interest and goodwill of individual farmers and landowners. Raising the profile of the importance of traditional boundaries amongst the farming and land-owning fraternity is

therefore seen as a priority. Guidance information, as well as support and encouragement for boundary conservation and maintenance, should be provided, possibly as a campaign supported by a booklet (something along the lines of the Cadw 'Caring for...' series might be appropriate), which could be distributed to farmers through Tir Gofal Project Officers and through the national farming unions.

8.7 The next stage of work must also include a study of the variety of boundary 'furniture' (gates, stiles, drinking troughs *etc.*) as these are significant features which are integral to the boundary and which need to be conserved and managed as part of them. Experience of fieldwork across Wales suggests that the variety of such features plays an important role in rural regional and local distinctiveness.

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