

THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

Warren Wood, New Radnor

ARCHAEOLOGICAL SURVEY



CPAT Report No 408

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ARCHAEOLOGICAL SURVEY

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December 2000

Report for Forest Enterprise

The Clwyd-Powys Archaeological Trust

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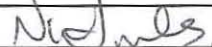
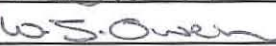


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1 INTRODUCTION

- 1.1 Following proposals by Forest Enterprise that further information was required concerning the archaeological resource within Warren Wood in order to assist with its future management, a brief (ASB 396) was prepared by M Walters, Curatorial Section of the Clwyd-Powys Archaeological Trust, which described the scheme of archaeological investigation required.
- 1.2 The Contracting Section of the Clwyd-Powys Archaeological Trust was invited to submit a quotation and specification for the work, which was duly accepted in August 2000.

2 LOCATION, TOPOGRAPHY AND GEOLOGY

- 2.1 Warren Wood lies 4 km west of New Radnor (SO 18526007) and just to the north of the A44 Rhayader to Leominster road. It consists of a linear plantation following the course of the Black Brook, one of several deeply cut valleys that penetrate the southern flank of Radnor Forest (fig. 1). The planted and open spaces total 65ha and the plantation is used as an amenity area which includes the Water-break-its-neck waterfall. Warren House lies just beyond the western boundary of the wood, with a series of pillow mounds (PRN 43103; SO 18056030) further to the north-west forming the warren from which the placenames are derived.
- 2.2 The underlying solid geology is Palaeozoic slate, mudstone and siltstone. Overlying drift and soils consist of typical brown podzols forming well drained fine loamy or silty soils of the Manod soil association which are shallow in places with rock outcrops (Soil Survey of England and Wales 1983).

3 DESK-BASED STUDY

- 3.1 Stage one of the survey involved the examination of all the readily available primary and secondary documentary, cartographic, pictorial, photographic and oral sources. Repositories consulted included the following: Regional Sites and Monuments Record (SMR), CPAT, Welshpool; the National Monuments Record (NMR), Royal Commission on Ancient and Historical Monuments in Wales (RCAHMW), Aberystwyth; the National Library of Wales (NLW), Aberystwyth; Powys County Archives (PCA), Llandrindod Wells; Forest Enterprise.
- 3.2 The area had previously been studied as part of the Forest Enterprise Archaeological Survey in 1996 (Thomas and Earwood 1996), which took the form of a rapid desk-based and field assessment. Consequently, information held within the SMR indicates that six archaeological sites have previously been recorded within the area (figs 1 and 7; appendix 1), and it has been suggested that the area was once part of a designed landscape, elements of which are preserved within the later plantation.
- 3.3 The earliest available cartographic evidence for the area consists of a copy of a map of the parish boundary for Llanfihangel Nant Melan parish originally surveyed in 1726. The map identifies landmarks used to demarcate the parish boundary and although noting Water-break-its-neck waterfall, gives no information concerning Warren Wood or Warren House.
- 3.4 18th-century documents relating to the Harpton Court Estate (NLW) include several references to the area. A lease of 1743 from Thomas Lewis of Harpton to Michael Clarke of Casgob and Evan Meredith of Presteigne includes 'a piece of ground called the Forest of New Radnor Hill, with the warren and Warren House'. A second lease dated 1764 also refers to the warren and Warren House, again citing Evan Meredith, together with Thomas Pickering of Lincoln's Inn, Middlesex. It is clear from this that a building known as Warren House existed as early as 1743 in association with what may be assumed to have been an active rabbit warren.
- 3.5 The Harpton Court papers also include a letter written to Lady Roche by her niece Isabella Jane Whingates at Harpton Court in which she describes riding to view the Water-break-its-neck waterfall in 1814. It is likely that the waterfall was well-regarded for its picturesque beauty and visited frequently during the later 18th and earlier 19th centuries.

- 3.6 The attraction of the waterfall during this period is graphically illustrated in a sketch by J M Ince in 1832, which depicts a view very much in the Picturesque style, rather exaggerating the ravine and the torrent.
- 3.7 The Ordnance Survey Surveyors' drawing of 1817 (fig. 2) shows Warren House and the Water-break-its-neck waterfall, but gives no indication of any woodland or field enclosures in this area, such as are indicated elsewhere on the map. Two roads or tracks are shown to the south of the waterfall, with another leading northwards past Warren House.
- 3.8 The Tithe survey for Llanfihangel Nant Melan parish in 1841 (fig. 3) shows only Warren House, within an undefined, but apparently unenclosed area noted as 'Forest', and giving no indication of Warren Wood. This indicates that the area was at that time open moorland, a part of Radnor Forest.
- 3.9 The Ordnance Survey mapping for this area is only available at a scale of 6 inches to 1 mile. The 1st edition (fig. 4), surveyed in 1886-87, shows 'Warren Plantation', an enclosed area divided into areas of coniferous and mixed woodland. Apart from the waterfall, the only features identified are a ford (PRN 43101) across the Black Brook below the confluence with the watercourse from the falls, and several paths or tracks.
- 3.10 The Ordnance Survey 2nd edition 6 inch published in 1905 (fig. 5) shows little change from the earlier edition, but with the addition of two adjacent footbridges, one across the Black Brook (PRN 21384) and the other across the Water-break-its-neck stream (PRN 43100), and also a third footbridge lying further north on the Black Brook (PRN 21385). A copy of the Ordnance Survey 2nd edition 6 inch, annotated by the OS Archaeology Branch, indicates the location of a small 'cave' (PRN 43102), said to have been the hiding place of Llewellyn ap Gruffydd on his way to Builth in 1282. The historical association is, however, at best dubious.
- 3.11 The Ordnance Survey provisional edition 6 inch of 1902/1948 (fig. 6) shows Warren Plantation as mostly having been felled, with only two blocks of woodland surviving, one at the northern end of the plantation and the other to the north and west of the waterfall.
- 3.12 A series of vertical black and white aerial photographs taken by the RAF in February 1946 show Warren Wood very much as depicted on the Ordnance Survey provision edition, with only two areas of woodland remaining, although individual trees do survive within the felled areas. In the northern half of the area it is possible to identify a series of roughly parallel gullies aligned east-west which were presumably associated with the original tree planting. The aerial photographs have been used to plot the location of a significant number of specimen trees, together with detail on tracks and watercourses. The photographs were viewed as stereo pairs to enhance the detail, and were also digitally rectified to allow plotting.

4 FIELD SURVEY (figs 7-8)

- 4.1 Following on from the desk-based study a detailed field survey was undertaken during November and December 2000. The survey covered the whole of the plantation as thoroughly as possible although the topography, vegetation cover and brash prevented the survey being conducted along regular 30m transects. Those areas which were not thoroughly investigated are indicated in fig. 1.
- 4.2 All archaeological sites identified were recorded on standard site visit forms and photographed in 35mm format monochrome and colour print and colour slide. Each site, together with specimen trees, was plotted as accurately as possible onto base maps and later digitally transcribed. Where possible a GPS was used to plot the location of features, although its accuracy was extremely variable due to the location and tree cover. It has become evident that the existing plotting for the forestry roads and rides is of questionable accuracy and where possible their position has therefore been amended during the survey to give a more accurate plot of all features within the wood. However, although features visible on the 1946 aerial photographs have been accurately plotted, the exact position of all later features remains unresolved. The tracks shown in figs 7 and 8 are those which have been identified during the field survey, and do not include those shown on early editions of the Ordnance Survey which could not be verified on the ground.

Archaeological Sites (fig. 7)

- 4.3 Nine sites have been identified during the survey, including three previously unrecorded sites.

PRN 21382 Water-break-its-neck holloways
NGR SO1828059993
Type Holloway **Period** Medieval ?
Category C
Condition Earthworks survive up to c.1.5m in height

Recommendations

Trees should be removed during harvesting. Earthworks should not be damaged by planting or use of heavy machinery.

Description

Originally identified as a series of pillow mounds associated with Warren House, the earthworks are now interpreted as a series of braided holloways c. 2m wide running SE-NW, separated by banks up to 1.5m high.

PRN 21383 Water-break-its-neck footbridge I
NGR SO1825360056
Type Bridge **Period** 19th Century
Category B
Condition Survives in fairly good order and is still in use. Some loose edge stones.

Recommendations

Maintain in current condition Repair loose masonry to prevent further damage.

Description

Stone footbridge crossing the stream in the ravine above Water-break-its-neck waterfall. Length 6.6m, width 3.5m, height 2.3m. The arch is of dressed stone, and with a span of 1.75m.

PRN 21384 Water-break-its-neck footbridge II
NGR SO1852560075
Type Bridge **Period** 19th Century
Category No physical presence
Condition No visible remains. Site destroyed.

Recommendations

No recommendations

Description

A footbridge on the Black Brook is marked on the OS 2nd edition map of 1905. Now no visible surviving remains. It is likely that the bridge was removed in the 1980s during operations to build the new forest access road and culvert stream beneath it.

PRN 21385 Water-break-its-neck footbridge III
NGR SO1838060555
Type Bridge **Period** 19th Century
Category B
Condition Slight damage on lower side of arch and some stones missing on the upper surface of the bridge.

Recommendations

Repair damage and consolidate masonry. Mark off and do not use as access route during thinning.

Description

A stone footbridge on Black Brook is marked on the OS 2nd edition map of 1905. Length 3m, width 2.55m, height 1.7m. The arch is of dressed stone, with a span of 1.55m. The bridge is approached by a forest ride from the south.

PRN **21803** **Warren Plantation**
NGR SO1836560780
Type Plantation *Period* 19th Century
Category B
Condition Replanted with conifers, although many pre-FE conifers grow

Recommendations

Avoid damage to individual elements of the planned landscape.

Description

A conifer plantation is shown on the OS 1st edition map surveyed in 1886/87. The area may also have had a recreational purpose as there are a number of tracks heading towards the Water-break-its-neck waterfall, with associated footbridges and planting of specimen trees to create a picturesque landscape. This planting may originally date from the first half of the 19th century, with further planting in the later 19th century and around 1900.

PRN **39300** **Water-break-its neck quarry**
NGR SO1861060110
Type Quarry *Period* 19th Century
Category C
Condition Undamaged, little woodland regeneration.

Recommendations

Maintain in present condition.

Description

Small local quarry situated 7m inside the forest boundary, possibly used for constructing ornamental paths. A slight revetment at the front edge may have been a loading bay. The main quarry face measures 13m x 13m x 4.5m deep. There is an additional area of linear quarrying 1.5m to north, measuring 14m (N-S) x 5.5m x 2m deep. Quarry location has been corrected from its original mislocation at SO 1856560305.

PRN **43100** **Water-break-its-neck footbridge iv**
NGR SO1851060060
Type Bridge *Period* 19th Century
Category No physical presence
Condition No visible remains. Site destroyed

Recommendations

No recommendations

Description

A footbridge is shown on the OS 2nd edition map of 1905. Its mapped location lies beneath the new forest access road with the stream culverted beneath it. There are now no visible surviving remains. The bridge is presumed to have been destroyed in the 1980s with construction of the road.

PRN **43101** **Water-break-its-neck ford**
NGR SO1853060045
Type Ford *Period* 19th Century
Category No physical presence
Condition No paving evident at crossing point

Recommendations

No recommendations

Description

Ford shown on the OS 1st edition map surveyed in 1886/87. The stream bed shows no evidence of any paving, and the ford may have been simply a shallow crossing point.

PRN 43102 **Water-break-its-neck cave**
NGR SO18166002
Type Cave **Period** Unknown
Category Not yet evaluated
Condition Unknown. Not located.

Recommendations

No recommendations.

Description

The position of a small cave (reputed to be a hiding place of Llewellyn ap Gruffydd, although this is very unlikely) is indicated on a copy of the OS 2nd edition map of 1905 annotated by the OS Archaeology Branch. The site visit failed to locate the cave - water levels in the stream were too high to permit a thorough search of the ravine.

Specimen trees (fig. 8)

- 4.4 The specimen planting includes a surprising variety of trees (table 1), with 62 trees identified comprising 12 different species. Although most are what might be termed exotic species, this number includes several large sweet chestnuts and an oak. It is likely that the surviving trees represent the majority of the original planting although it is clear from the 1946 aerial photographs that at least 12 trees have been lost since that date.
- 4.5 Although there is no strict pattern to the planting, the trees have clearly been positioned in relation to a number of tracks. It is interesting to note that the Wellingtonias are confined to the western side of the Black Brook, with planting to the east dominated by Scots pine. The specimen trees are confined to the southern half of Warren Wood, with none in the northern half, but originally extended beyond the modern boundary of the wood to the south, where there is a large Wellingtonia in the middle of a field on the west side of the access road (SO 1870859556).
- 4.6 An attempt has been made to provide a rough date for the planting of the specimen trees by studying their girths. For coniferous trees it has been assumed that on average a tree will add 2.5cm to its girth for every year of growth (A Chater pers comm.). Unfortunately, this does not hold true for Wellingtonias, which have a tapering trunk and cannot therefore be reliably measured, although they were first introduced into Britain in 1853 so that they must have been planted some time after that date. The girth was measured at a uniform height of 1.5m above ground. This method can only be used to provide a rough estimate of age since the rate of growth will vary, depending on the locality and particularly whether the tree has been growing in the open or within a wood.

Table 1 Specimen tree species and estimated age

Species	No. trees	girth range (cms)	estimated age (years)
Douglas Fir	2	450	180
European Larch	4	260	105
Grand Silver Fir ?	1	260	105
Japanese Cedar	1	290	116
Lawson Cypress	1	190	75
Monkey Puzzle	2	175-215	75
Norway Spruce	4	310-380	145
Oak	1	-	-
Red Cedar ?	1	320	130
Scots Pine	9	255-365	100-150
Scots Pine	13	170-235	<100
Sweet Chestnut	8	-	-
Wellingtonia	15	-	-
Total	62		

- 4.7 It is apparent from the estimated ages of the trees that there are a number of planting episodes represented, the earliest of which comprises the Douglas Fir, Norway Spruce (plate. 1), and possibly some of the older Scots Pine, which may have been planted between 1820 and 1865. The Wellingtonias (plate 2) must have been planted after their introduction in 1853, and almost certainly

before the end of the century, possibly at the same time as the Japanese Cedar, Red Cedar and Grand Silver Fir. Later planting, perhaps around 1900, included the European Larch and most of the Scots Pine, although by this date the whole area had become a plantation so that individual trees are less likely to have been planted as specimens within the landscape. The Lawson Cypress and Monkey Puzzle may also have been planted around 1900, although their girths would indicate a date of around 1925. A number of yew trees were also identified, particularly in the ravine below the waterfall and adjacent to the footbridge (PRN 21385) over the Black Brook, although it is uncertain as to whether they form part of the specimen planting.

5 CONCLUSIONS

- 5.1 The results from the survey have provided significant new information relating to the history and development of the area. It is now known that a building known as Warren House was in existence by 1743, although the surrounding area remained unenclosed until well into the 19th century. During the 18th and early 19th centuries the area was owned by the Harpton Court Estate and it would seem likely that the specimen planting was undertaken by the Estate, probably in at least two phases. The intention appears to have been to create a picturesque landscape centred on the Water-break-its-neck waterfall, with a variety of tree species deliberately placed to enhance the local views. The planting seems to have been associated with a number of tracks and footbridges which may have created a circular walk around the southern end of Warren Wood.
- 5.2 A maximum of 62 specimen trees have been identified, comprising 11 species, although the dominant planting consists of Wellingtonia and Scots pine. Although a number of the original trees have been lost since 1946 it would appear that the majority still survive. An attempt at determining the age of the trees using a measurement of their girth has suggested that the earliest planting may have occurred between 1820 and 1865, with surviving trees consisting of Douglas Fir, Norway Spruce and some Scots Pine. Wellingtonia were introduced to Britain in 1853 and the Warren Wood specimens must therefore have been planted sometime after that date. A later phase of planting, possibly around 1900, may be associated with the creation of a plantation covering the whole area of Warren Wood, and individual trees belonging to this period are less likely to have been planted as part of the picturesque landscape.
- 5.3 The survey identified nine archaeological sites, including the plantation itself. Of four footbridges which are shown on early editions of the Ordnance Survey, only two survive (PRNs 21383 and 21385), as does the ford (PRN 43101) and a small quarry (PRN 39300). An area of linear earthworks (PRN 21382) originally identified as possible pillow mounds is now thought more likely to be a series of braided trackways surviving as holloways with associated banks. In addition, a number of trackways have been identified from aerial photographs and field survey, some of which undoubtedly formed picturesque walks around the waterfall and seem to provide a focus for much of the specimen planting.

6 ACKNOWLEDGEMENTS

- 6.1 The authors would like to thank the following for their assistance: Michelle Bromley and Steve Mather, Forest Enterprise; Richard Hankinson, Glyn Owen and Bob Silvester, CPAT; Medwyn Parry and David Thomas, RCAHWW; Arthur Chater, for advice on dating specimen trees; the staff of National Monuments Record, National Library of Wales and Powys County Archives.

7 REFERENCES

Published sources

Ince, J M, 1832. *Views Illustrating the County of Radnor*.

Soil Survey of England and Wales, 1983. *Soils of England and Wales, Sheet 2: Wales*. Harpenden: Soil Survey of England and Wales

Thomas, D & Earwood, C, 1996. *Forest Enterprise Archaeological Survey 1996*. CPAT Report No. 191.

The following repositories were consulted: County SMR, CPAT, Welshpool; the National Monuments Record (NMR), RCAHMW, Aberystwyth; the National Library of Wales (NLW), Aberystwyth; Powys County Archives (PCA), Llandrindod Wells

Cartographic sources

Ordnance Survey Surveyors' drawing 1817

Tithe survey for Llanfihangel Nant Melan Parish 1841

Ordnance Survey 1st edition 6 inch surveyed in 1886-87, Radnorshire 24 SW

Ordnance Survey 2nd edition 6 inch revised in 1902 and published in 1905, Radnorshire 24 SW.

Annotated map by OS Archaeology Branch. PCA.

Ordnance Survey provisional edition 6 inch 1902/1948, Radnorshire 24 SW. PCA.

Documentary sources

Harpton Court Estate papers 2, C/350, Nov. 1st 1814. NLW

Harpton Court Estate papers 5, 472, leased dated 1743. NLW

Harpton Court Estate papers 5, 476-7, leased dated 1764. NLW

Aerial photographic sources (NMR)

RAF vertical photographs 1946

1060/UK/1190/4085, 4086 and 4087

APPENDIX 1

WARREN WOOD, NEW RADNOR, POWYS SPECIFICATION FOR AN ARCHAEOLOGICAL ASSESSMENT BY CLWYD-POWYS ARCHAEOLOGICAL TRUST

1 Introduction

- 1.1 It has been proposed by Forest Enterprise that further information is required concerning the archaeological resource within Warren Wood (SO 18526007) in order to assist with its future management. Accordingly, a brief (ASB 396) has been prepared by M Walters, Curatorial Section of the Clwyd-Powys Archaeological Trust, acting as archaeological curators for the area, which describes the scheme of archaeological investigation required.
- 1.2 Warren Wood lies 4 mile north-west of New Radnor and consists of a linear plantation following the course of the Black Brook. The planted and open spaces total 65ha and the plantation is used as an amenity area.
- 1.3 Information held within the Regional Sites and Monuments Record indicates that 6 archaeological sites have previously been recorded within the area, 5 of which suggest that the area was once part of a designed landscape, elements of which are preserved within the plantation.

2 Objectives

- 2.1 The objectives of the assessment are:
 - 2.1.1 to reveal by means of a combination of desk-based assessment and field survey, the nature, condition, significance and, where possible, the chronology of the archaeology within Warren Wood, in so far as these aims are possible;
 - 2.1.2 to record any archaeology revealed during the field survey;
 - 2.1.3 to prepare a report outlining the results of the assessment,
 - 2.1.4 to identify and recommend options for the management of the archaeological resource, including any further provision for that resource where it is considered necessary.

3 Methods

- 3.1 Stage one of the assessment will involve the examination of all the readily available primary and secondary documentary, cartographic, pictorial, photographic and oral sources. Repositories consulted will include the following: County SMR, CPAT, Welshpool; the National Monuments Record, RCAHMW, Aberystwyth; the National Library of Wales, Aberystwyth; Powys County Archives, Llandrindod Wells; Forest Enterprise.
- 3.2 Stage two will take the form of a detailed field survey of the whole plantation where access is readily available and subject to health and safety considerations. In principle, the survey will be conducted along regular 30m transects although topography and vegetation are likely to necessitate changes to this pattern.
- 3.3 All archaeological sites identified will be recorded on standard site visit forms and photographed in 35mm format monochrome and colour print and colour slide, including a scale in each view. Each site, together with specimen trees, will be plotted as accurately as possible onto base maps and later digitally transcribed.
- 3.4 Following the on-site work the results will be entered into a database, the format of which will be compatible with the Regional SMR and to a format agreed in advance with Forest Enterprise. Where possible, archaeological sites will be digitally plotted to include a representation of their extent and

form. All newly recorded sites will be given individual sequential primary record numbers, obtained from the Regional SMR.

- 3.5 An illustrated and bound report will be prepared according to the principles laid out in the Curatorial Brief (section 7). This will be in A4 format and contain conventional sections on: Site location, Topography and Geology; Historic Background; Field Survey; Conclusions and Recommendations and References, together with appropriate appendices on archives and finds.
- 3.6 The site archive will be prepared to specifications laid out in Appendix 3 in the *Management of Archaeological Projects* (English Heritage, 1991).

4 Resources and Programming

- 4.1 The assessment will be undertaken by a small team of two skilled archaeologists under the direct supervision of Nigel Jones, a senior member of CPAT's staff who is also a member of the Institute of Field Archaeologists.
- 4.2 All report preparation will be completed by or with the assistance of the same field archaeologist who conducted the evaluation.
- 4.3 It is anticipated that the assessment will be completed by the end of December 2000. A draft copy of the report will be provided to the client and curator for comment prior to the production of the final report. The site archive will be deposited with the Regional SMR within one month of the project's completion. The curator will be informed of the field survey timetable in order to arrange for monitoring if required.
- 4.4 Requirements relating to Health and Safety regulations will be adhered to by CPAT and its staff.
- 4.5 CPAT is covered by appropriate Public and Employer's Liability insurance.

N.W.Jones
18th August 2000

APPENDIX 2**SITE ARCHIVE****Site data**

9 Site visit forms
1 black and white negative film, contacts and archive prints
1 colour slide film
1 colour print film
photographic catalogue

Digital data

Mapinfo Table	data
aptrack	tracks mapped from aerial photos
apwater	water courses mapped from aerial photos
archaeological point data	SMR database of archaeological sites
area	FE boundary for Warren Wood
fe ride	FE rides
fe road	RE roads
trees	specimen trees

Miscellaneous

copies of cartographic sources
correspondence
CPAT specification
Design brief ASB 396
Forestry Commission Contract Agreement No CSM004:00/01

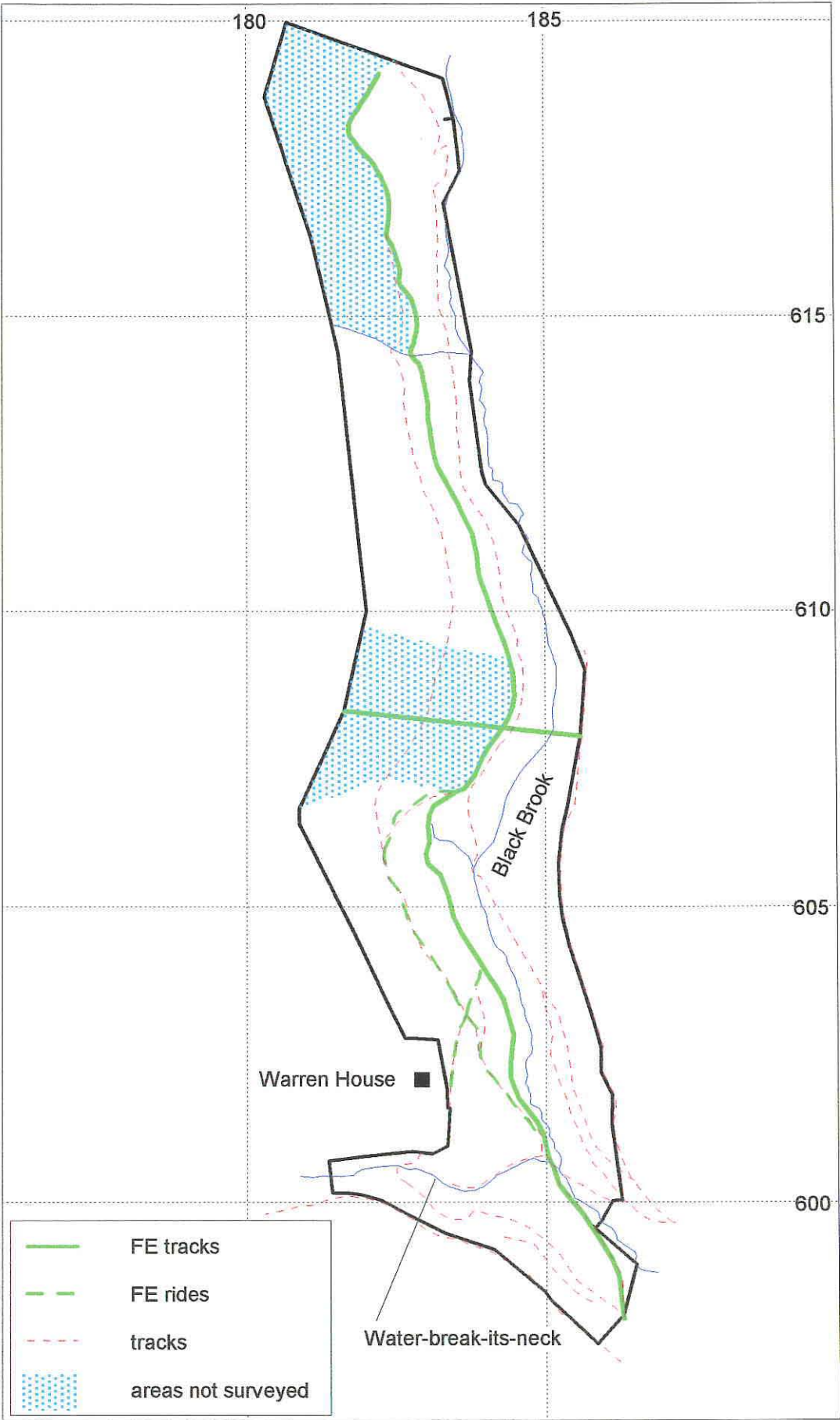


Fig. 1 Warren wood. Scale 1:10,000

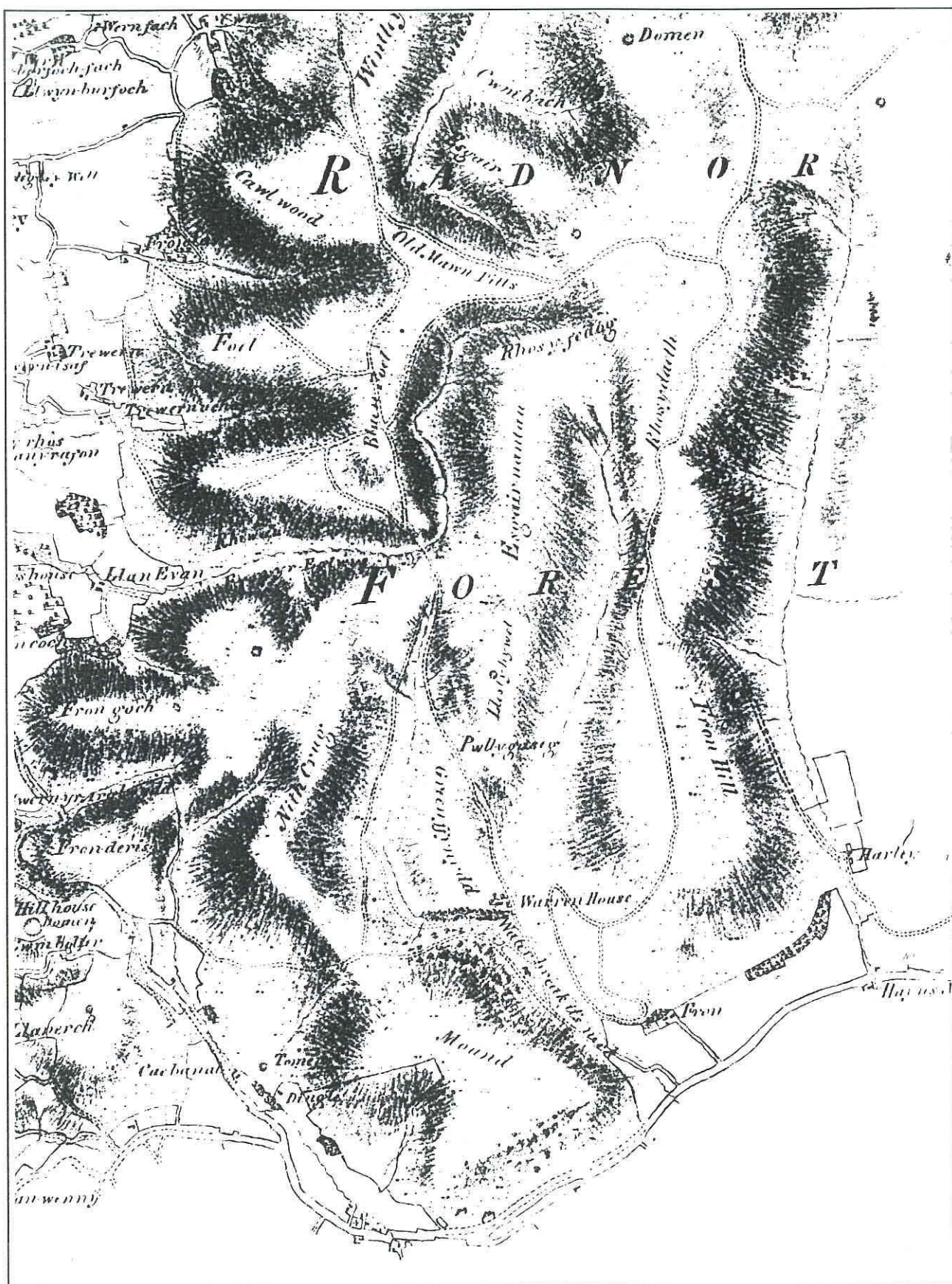


Fig. 2 Ordnance Survey Surveyors' drawing 1817

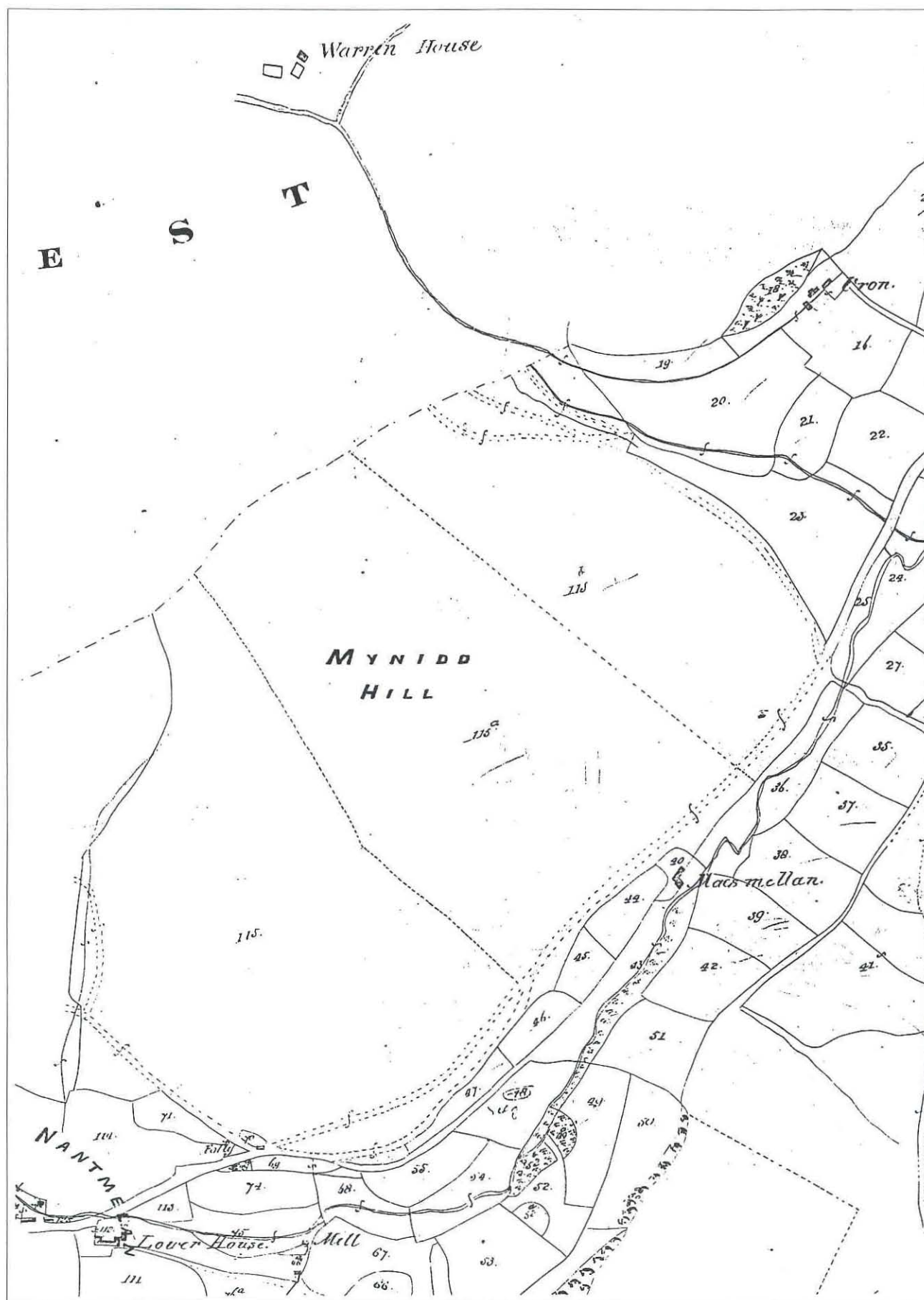


Fig. 3 Tithe Survey for Llanfihangel Nant Melan parish, 1841

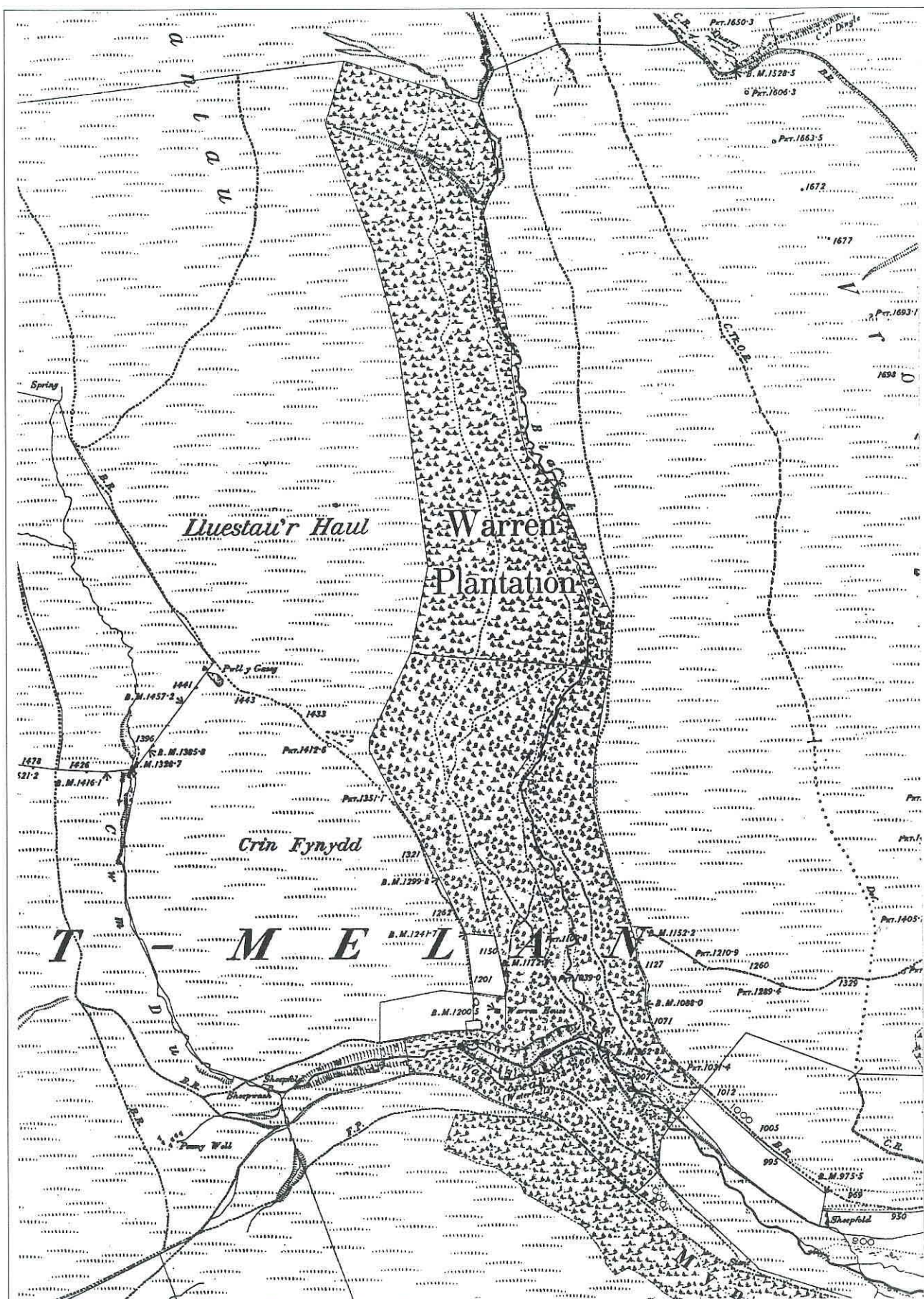


Fig. 4 Ordnance Survey 1st edition 6" (Radnor 24 SW) surveyed 1886-7, published 1891.

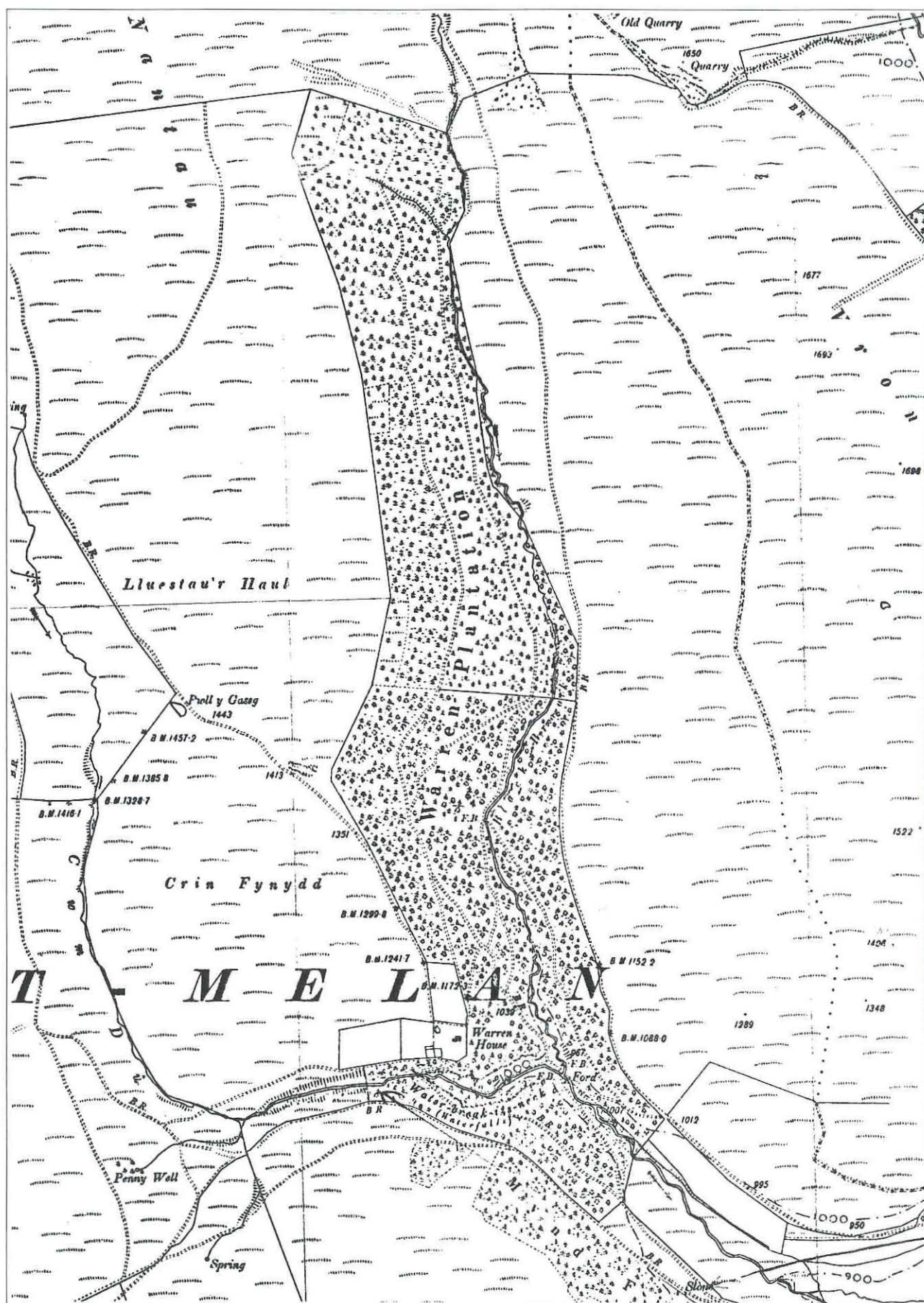


Fig. 5 Ordnance Survey 2nd edition 6" (Radnor 24 SW) published 1905

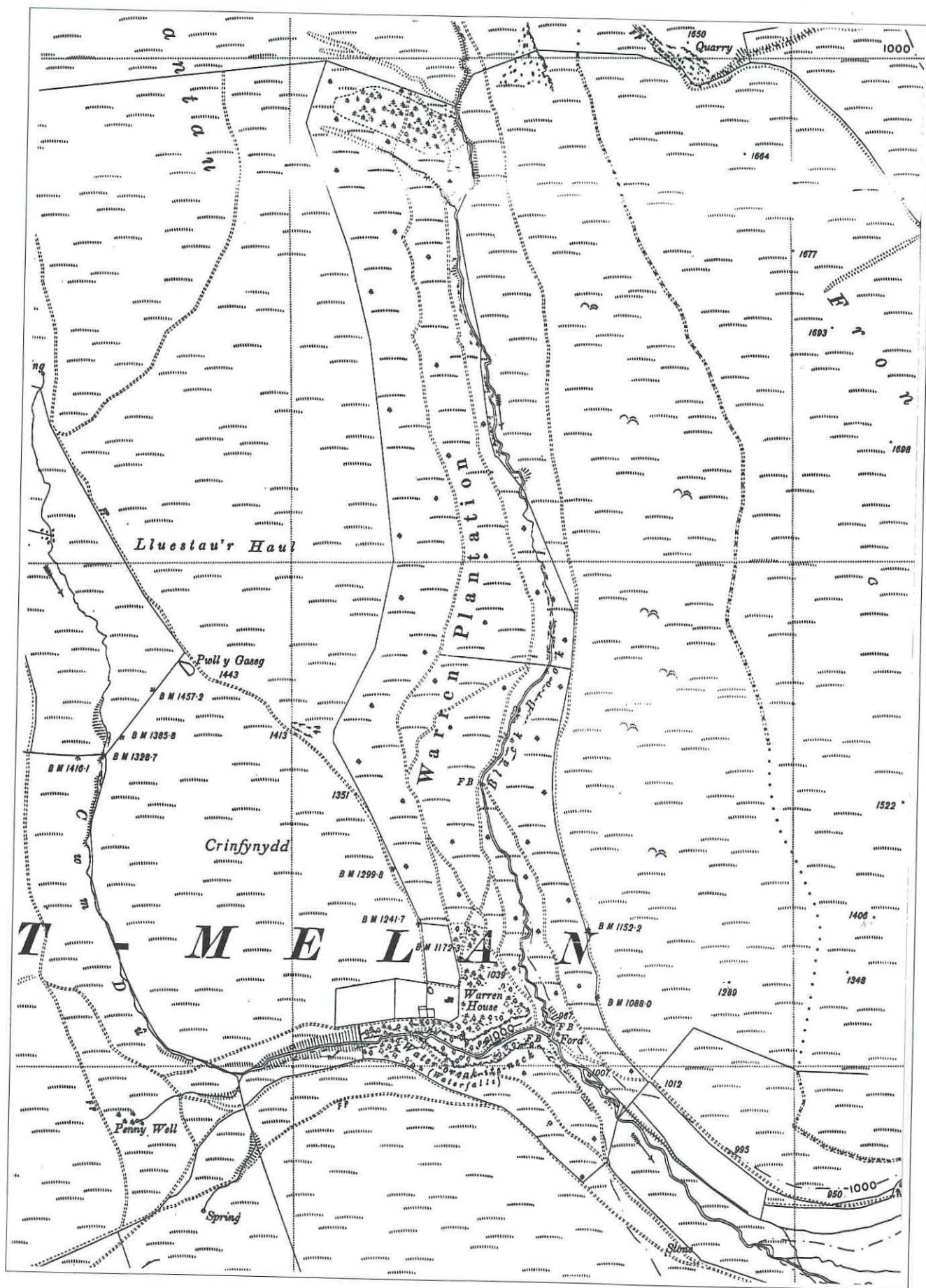


Fig. 6 Ordnance Survey provisional edition 6" (Radnor 24SW) published 1948

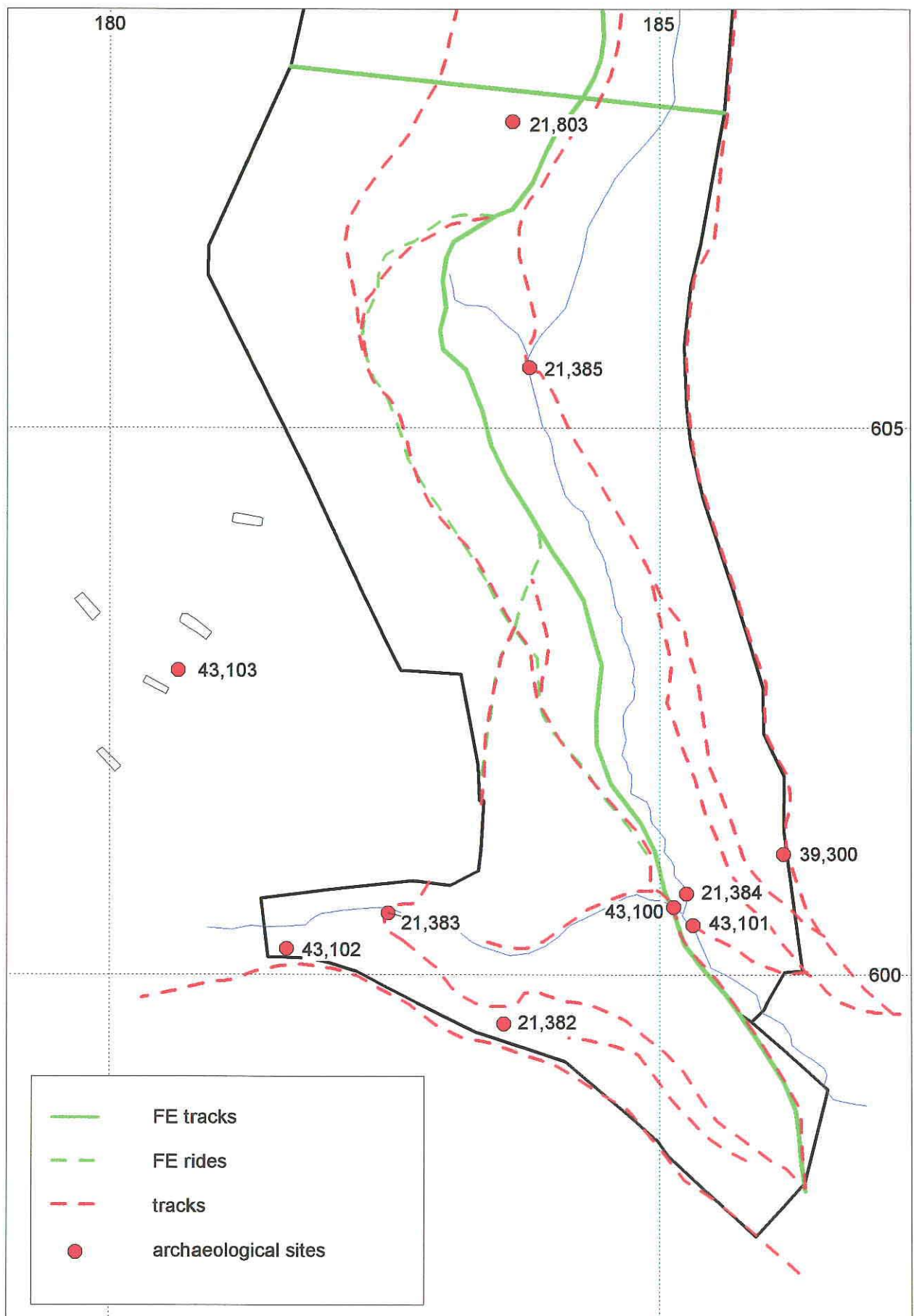


Fig. 7 Archaeological sites. Scale 1:5,000

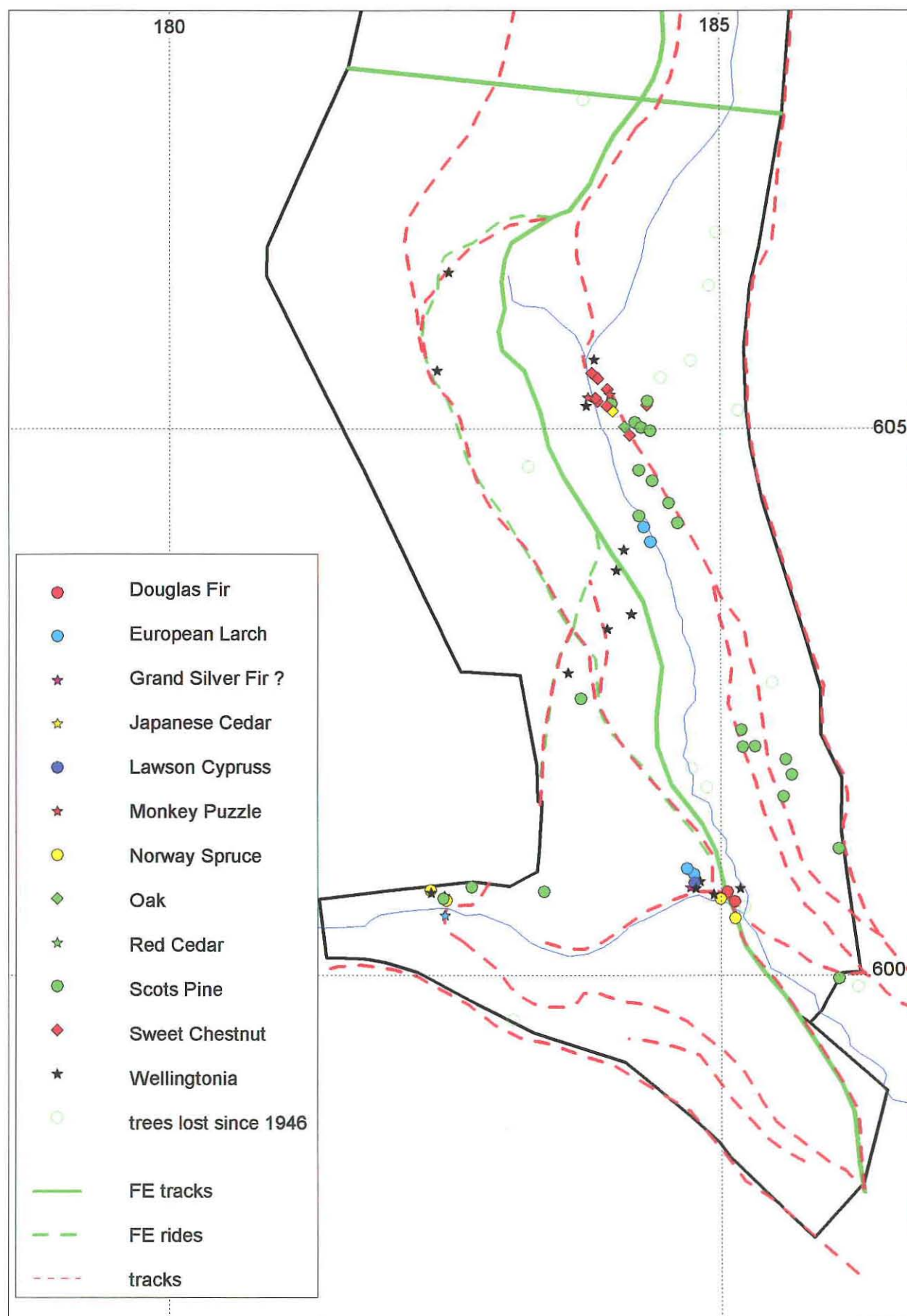


Fig. 8 Specimen trees. Scale 1:5,000



Plate 1 Norway Spruce and Douglas Fir at entrance to waterfall ravine. Photo CPAT 1023.11



Plate 2 Group of Wellingtonias planted as specimen trees. Photo CPAT 1023.28