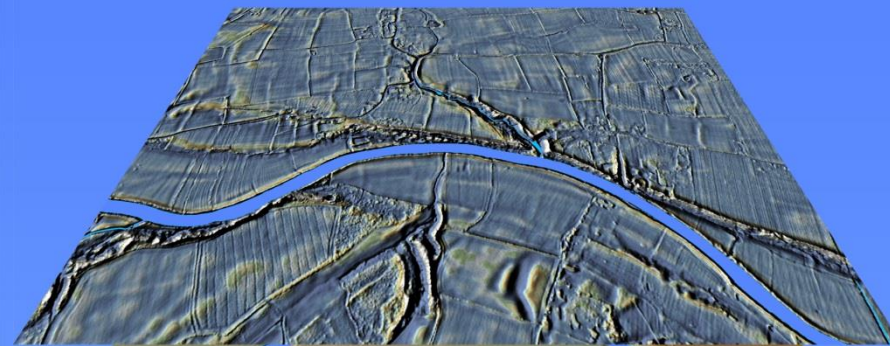


FOSS4G for Heritage and Habitat

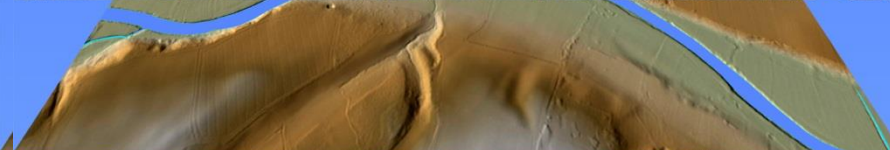
As applied to nature recovery and landscape
heritage projects in Herefordshire

FOSS4G Bristol 12th Nov2024

Geo-referencing digital images
to create raster sequence of layers



LIDAR DTM
Slope amplified



LIDAR DTM
free from EA



Virtual Earth
Microsoft



1953 census
of woods



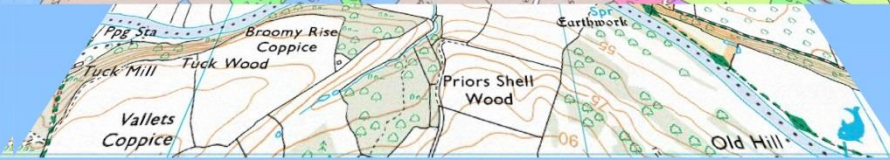
1947 RAF
airphoto



25" to mile
OS 1885 1st Ed



Tithe map
1840



OS 1:25,000

Tithe surveys result of the Tithe Commutation Act 1836.

Include the map of land & property parcels but also separate document 'apportionment' schedule with owner, tenant, field name, 'state of cultivation', area of each, tithe tax determination

44

Landowners	Occupiers	Number referring to the Plan	Name and Description of Lands and Premises.	State of Cultivation	Quantities in			Amount of Rent charge Apportioned upon the several Lands and payable to the Rector		
					A	R	P	£	s	d
Cox Samuel. (Continued)	Honer Charles (Continued)	1320	Brought Forward		81	23	11	11	6	
		1322	Far Breaches	Arable	3	1	11	14	5	
		1323	The Yeld	Arable	3	5		14	3	
		1324	Claydon Cottage Garden &c	Arable	1	1	0	4	9	
		1325	Rye Grass	Pasture	9	2	1	14	4	
		1326	Honer's Cottage & Garden			1				
		1327	Meadow Orchard - Buildings and Yard	Meadow	10	5		1	7	
		1328	New Field	Arable	10	2	21	2	6	
		1329	Banky Piece	Pasture	13	1		10	7	
		1330	Cockshuts	Arable	2	3	2	10		
		1331	Upper Middle Pough	Pasture	3	2	17	3	0	
		1332	Young Orchard	Arable	3	3		15	4	
		1333	Wood in Young Orchard	Wood		2	25		9	
		1338	Honested Garden & Park	Pasture	2	20		3	0	
		1341	Old Coppyard & Nursery	Pasture	3	32		2	4	
		1342	Evans Cottage & Garden			14				
		1343	Old Orchard	Pasture	1	3	35	3	5	
		1344	Perkins Meadow	Pasture	3	25		4	8	
		1348	Austins Cottage & Garden			34				
		1349	Park Field	Arable	7	2	9	1	6	
1350	Middle Pough	Pasture	4	25		4	2			
1351	The Three Cloes Ameleck	Arable	3	1	25	11	3			
				5		18	8			

332000 m

333000 m

334000 m

335000 m

1840 Tithe Map colour coded for land use

Arable

Meadow

Pasture

Rough pasture

Woodland

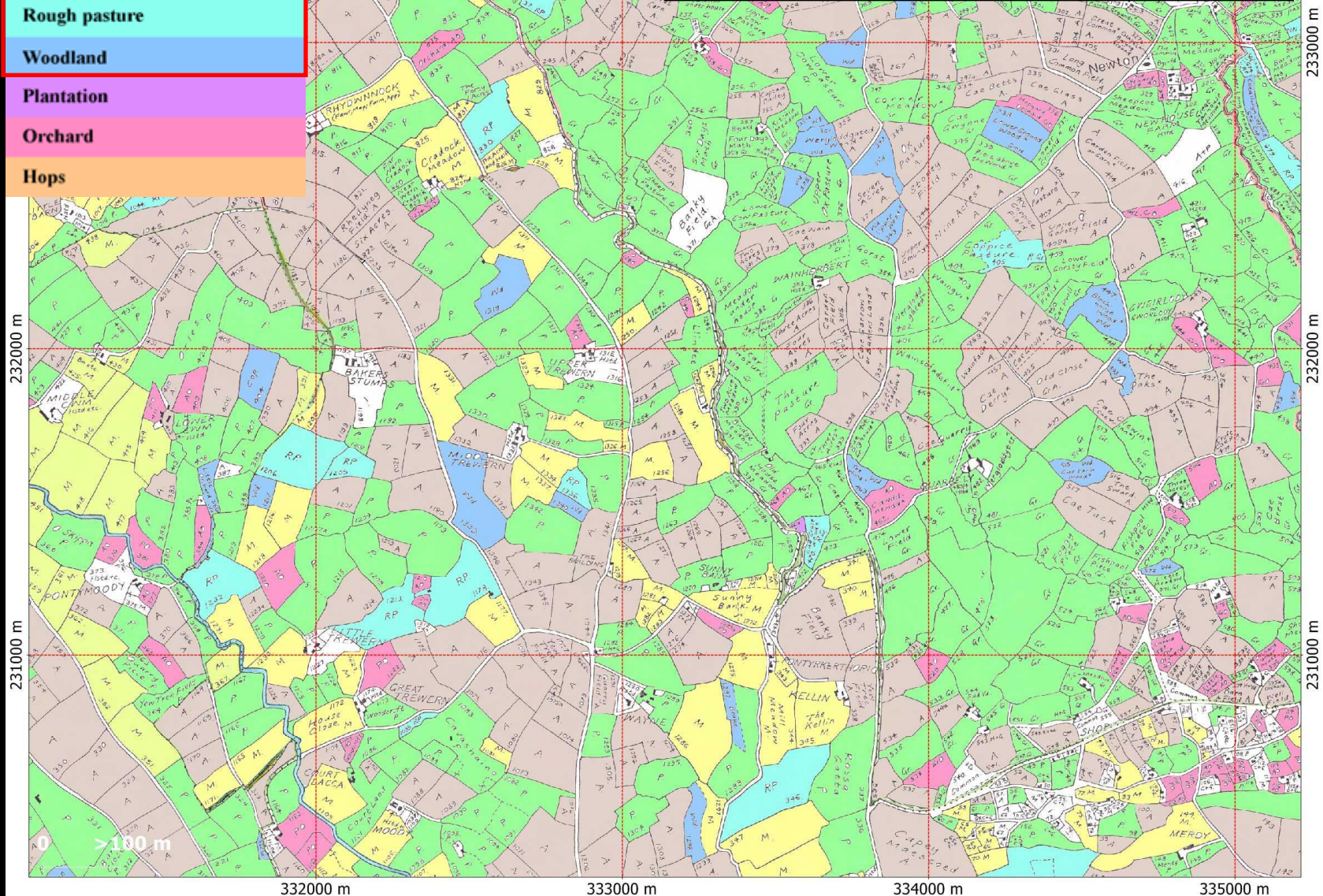
Plantation

Orchard

Hops

Tithe surveys are for ecclesiastic taxes
mainly reflect annual cropping or grazing.

But includes woodland, pasture with trees will
often be recorded as 'rough pasture'



232000 m

232000 m

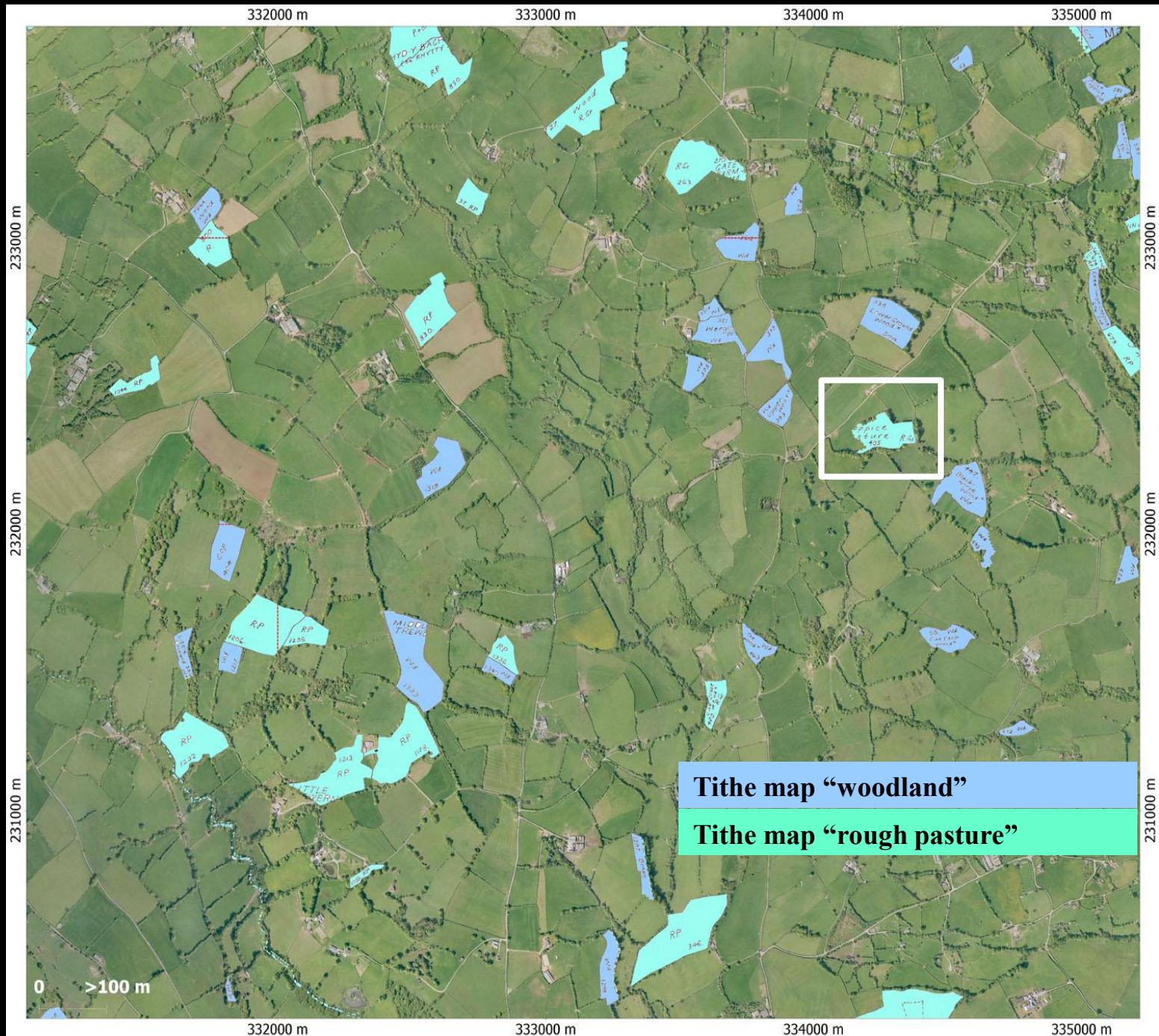
231000 m

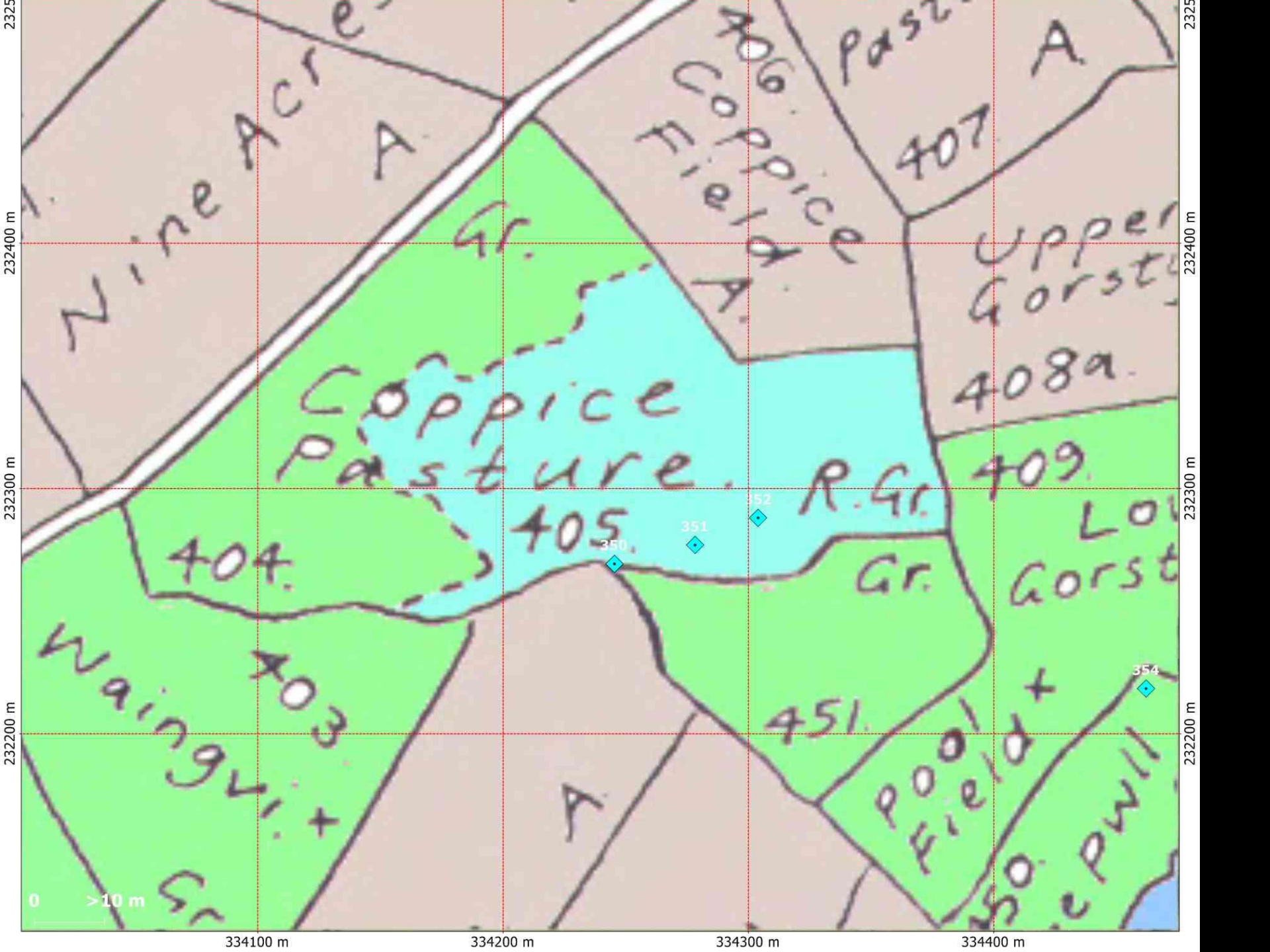
332000 m

333000 m

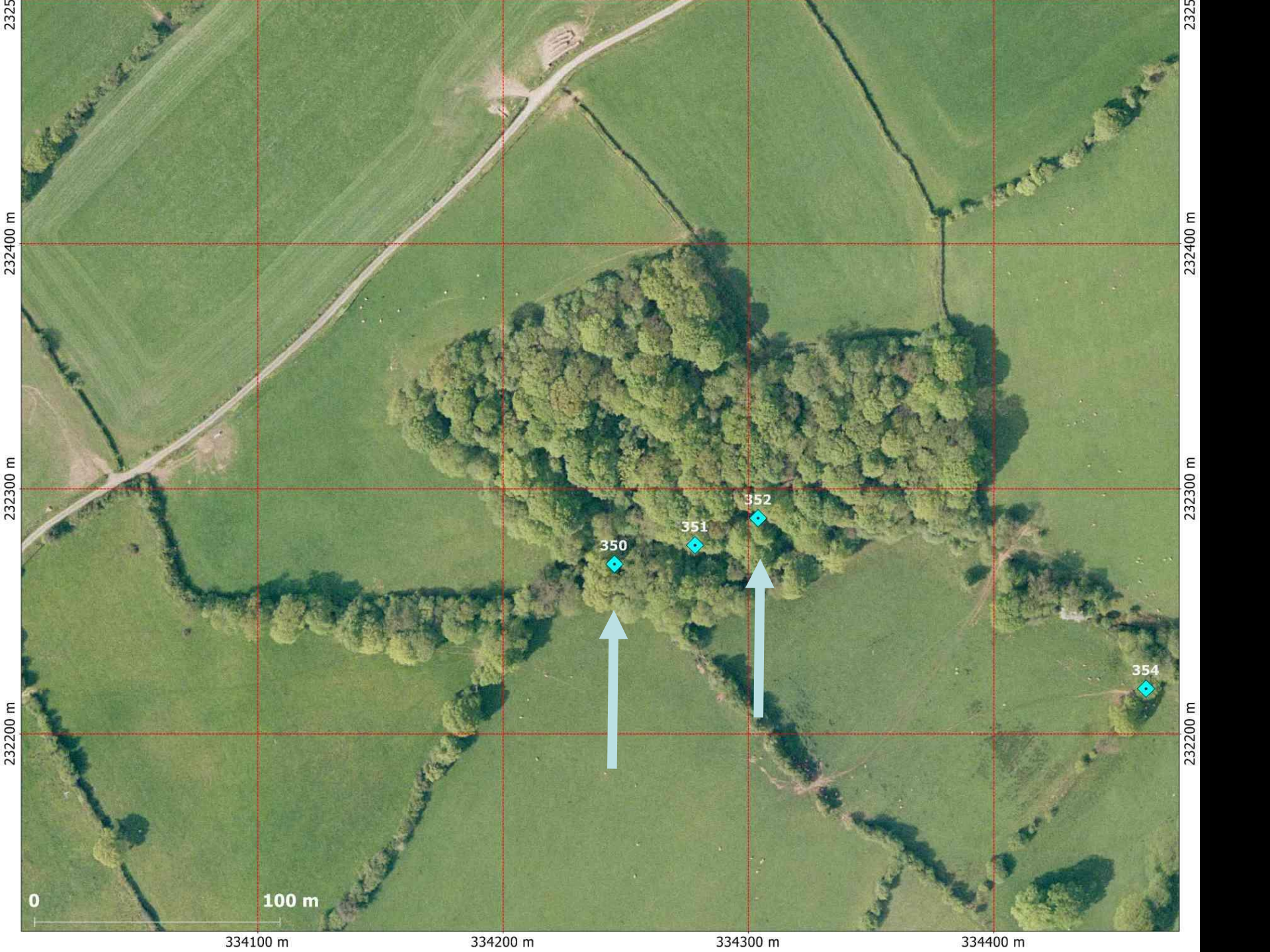
334000 m

335000 m











waypoint 350



Tilia

waypoint 352



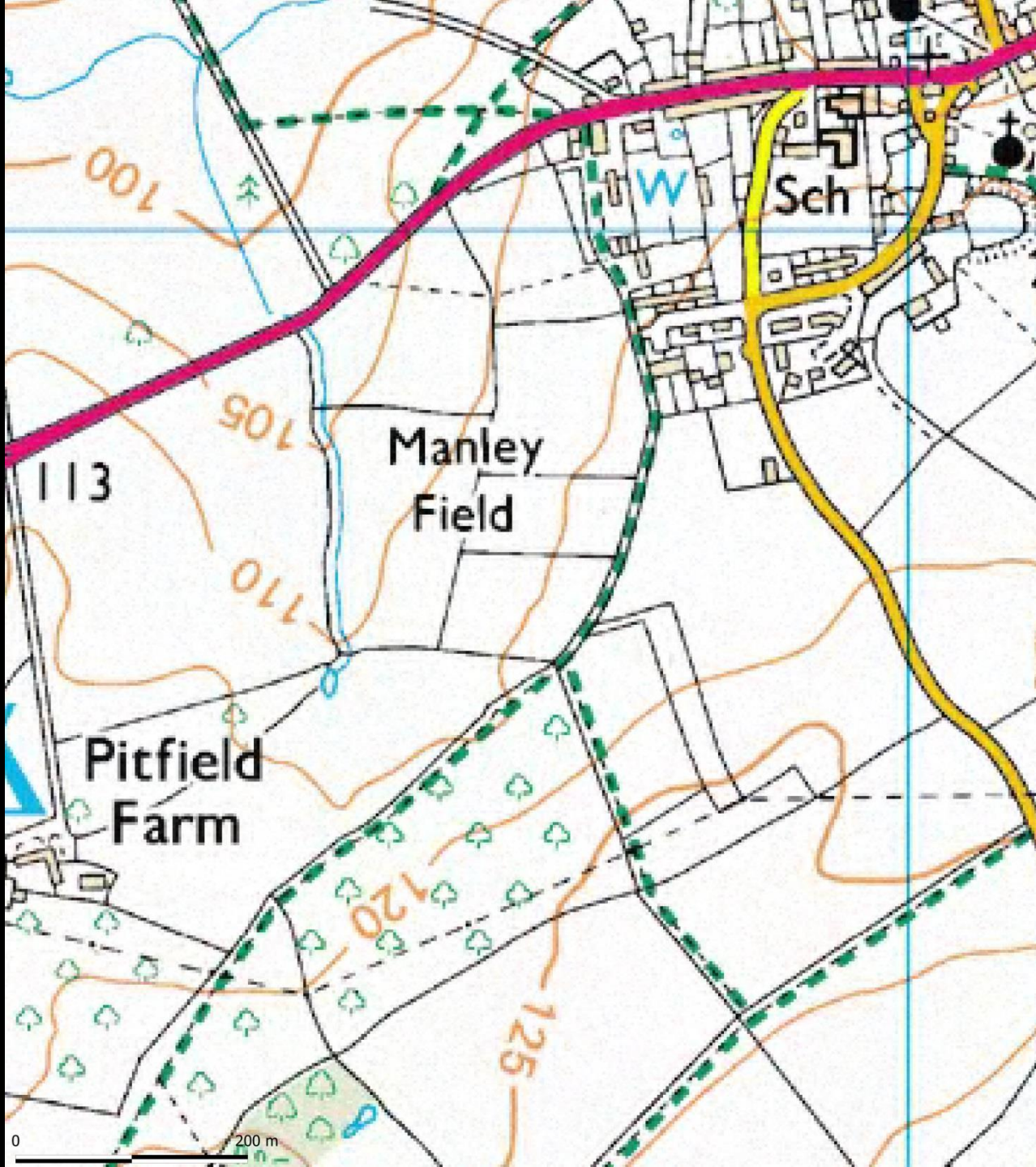
Pembridge parish
boundary NW central
Herefordshire

**Now switch to live
QGIS for its 1840
tithe map survey
if possible (!)**



0

200 m



113

Manley
Field

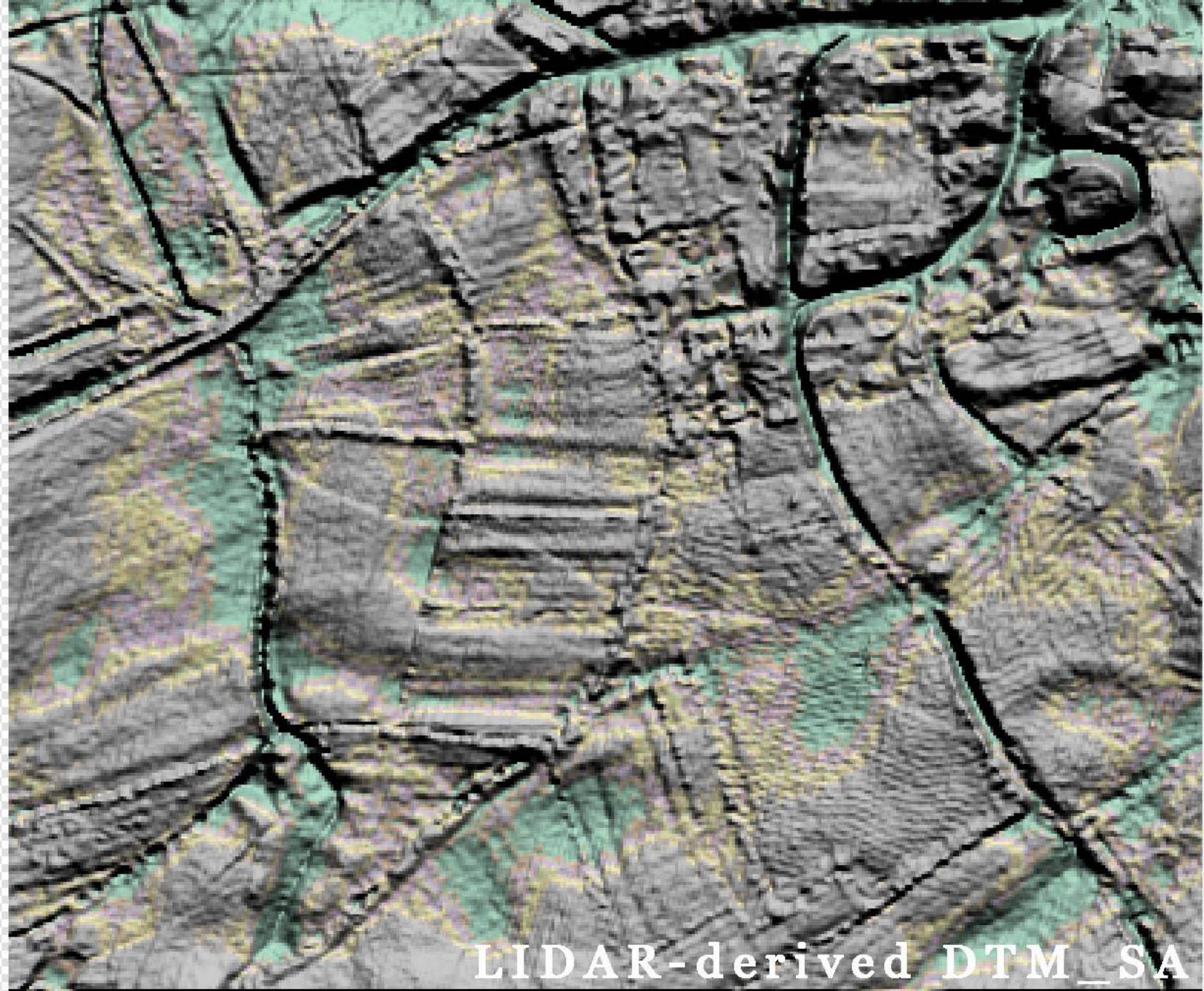
Sch

Pitfield
Farm

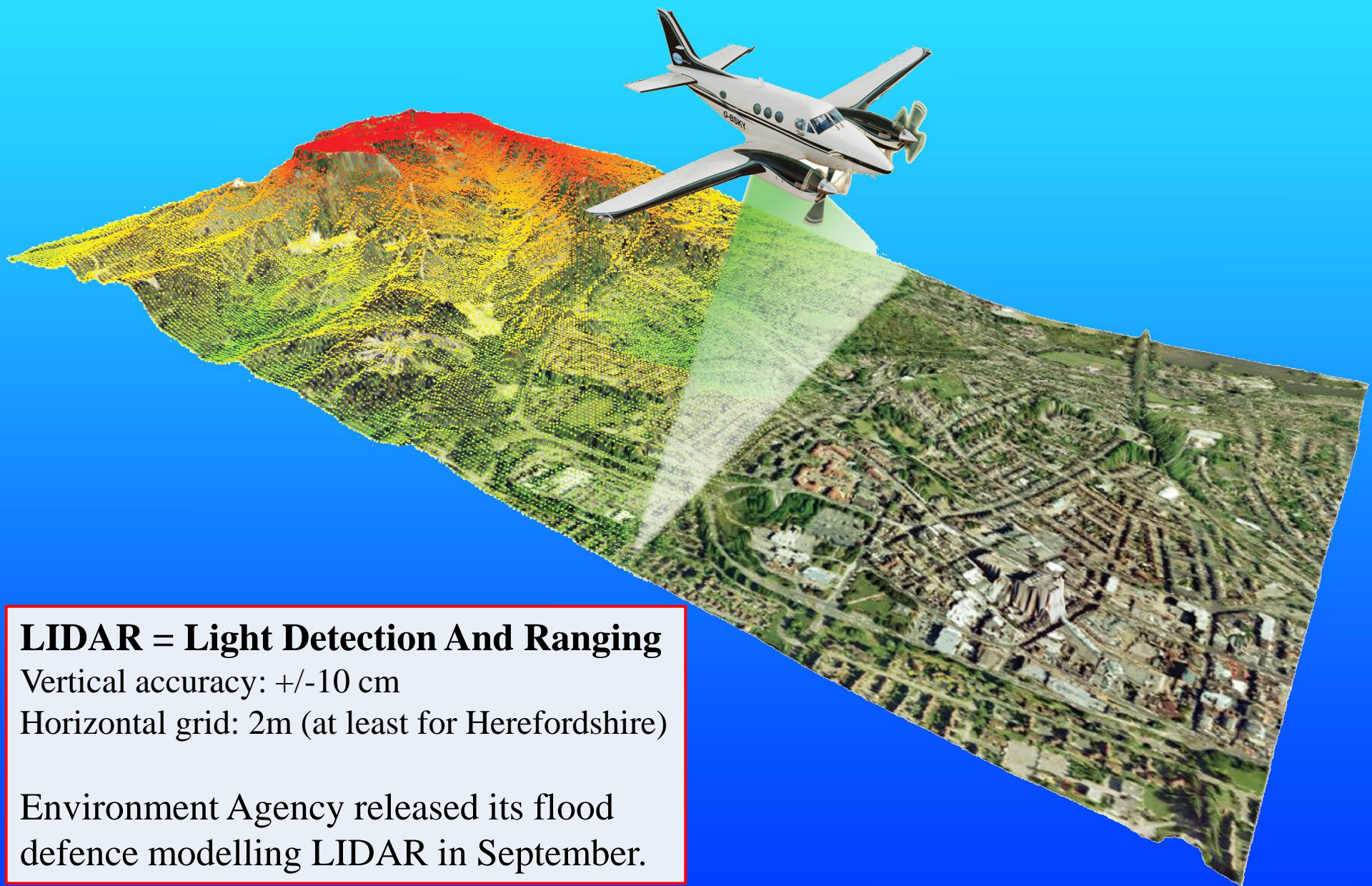
120

125

0 200 m



LIDAR-derived DTM_SA



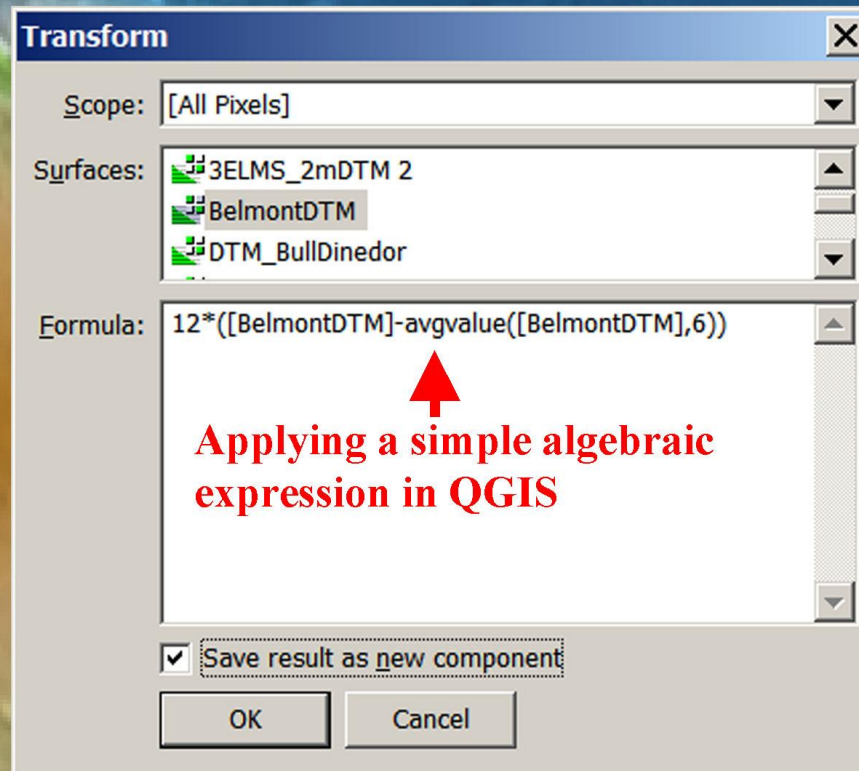
LIDAR = Light Detection And Ranging

Vertical accuracy: +/-10 cm

Horizontal grid: 2m (at least for Herefordshire)

Environment Agency released its flood defence modelling LIDAR in September.

Enhancing LIDAR terrain features by extracting and amplifying slope variations



To reveal subtle archaeological features, freely available GOV raw LIDAR DTM files require some arithmetic coding processing

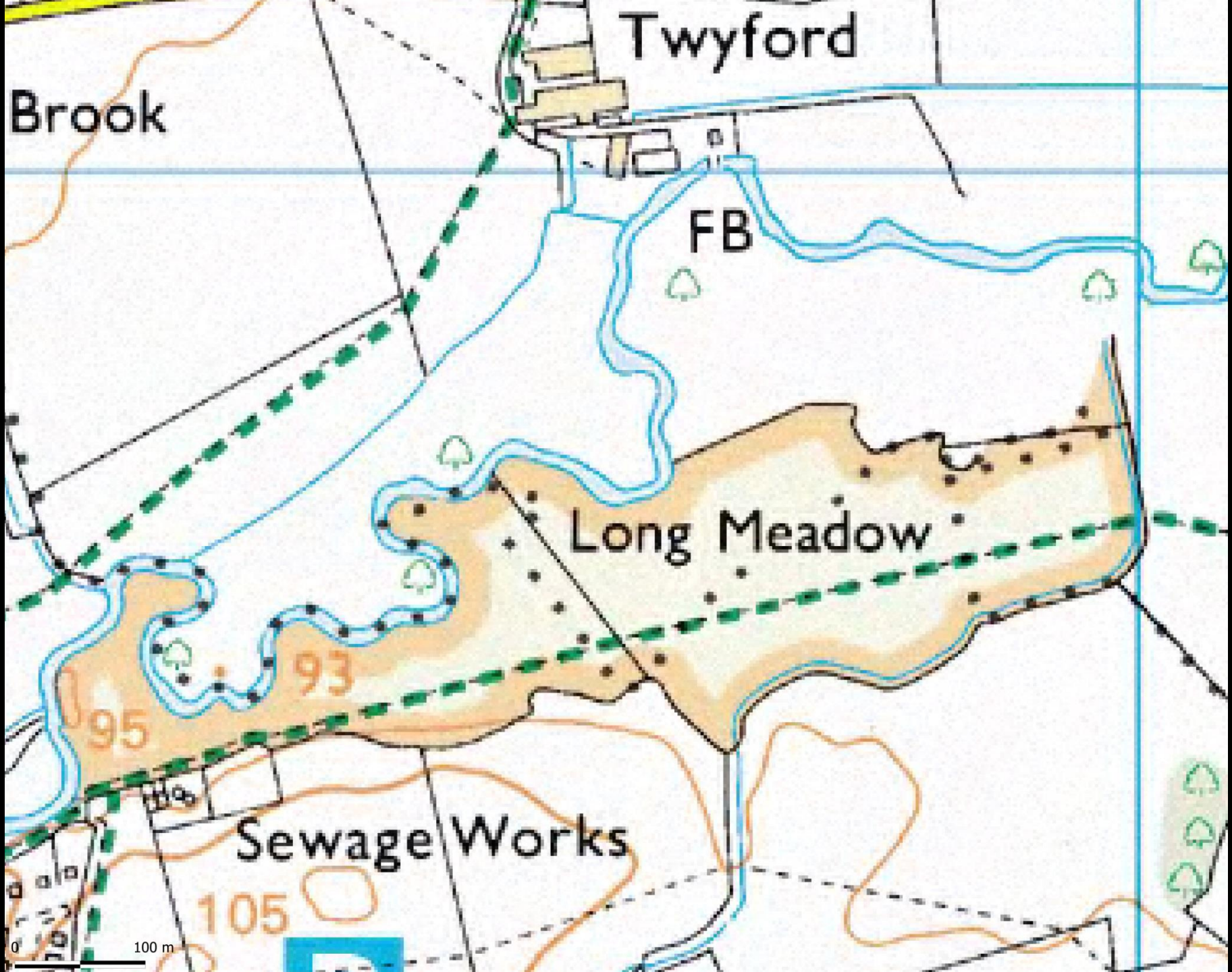
<https://environment.data.gov.uk/DefraDataDownload/>

0 100 m

347600 m 347700 m 347800 m 347900 m 348000 m 348100 m 348200 m 348300 m

238400 m 238500 m 238600 m 238700 m 238800 m

238300 m 238400 m 238500 m 238600 m 238700 m 238800 m



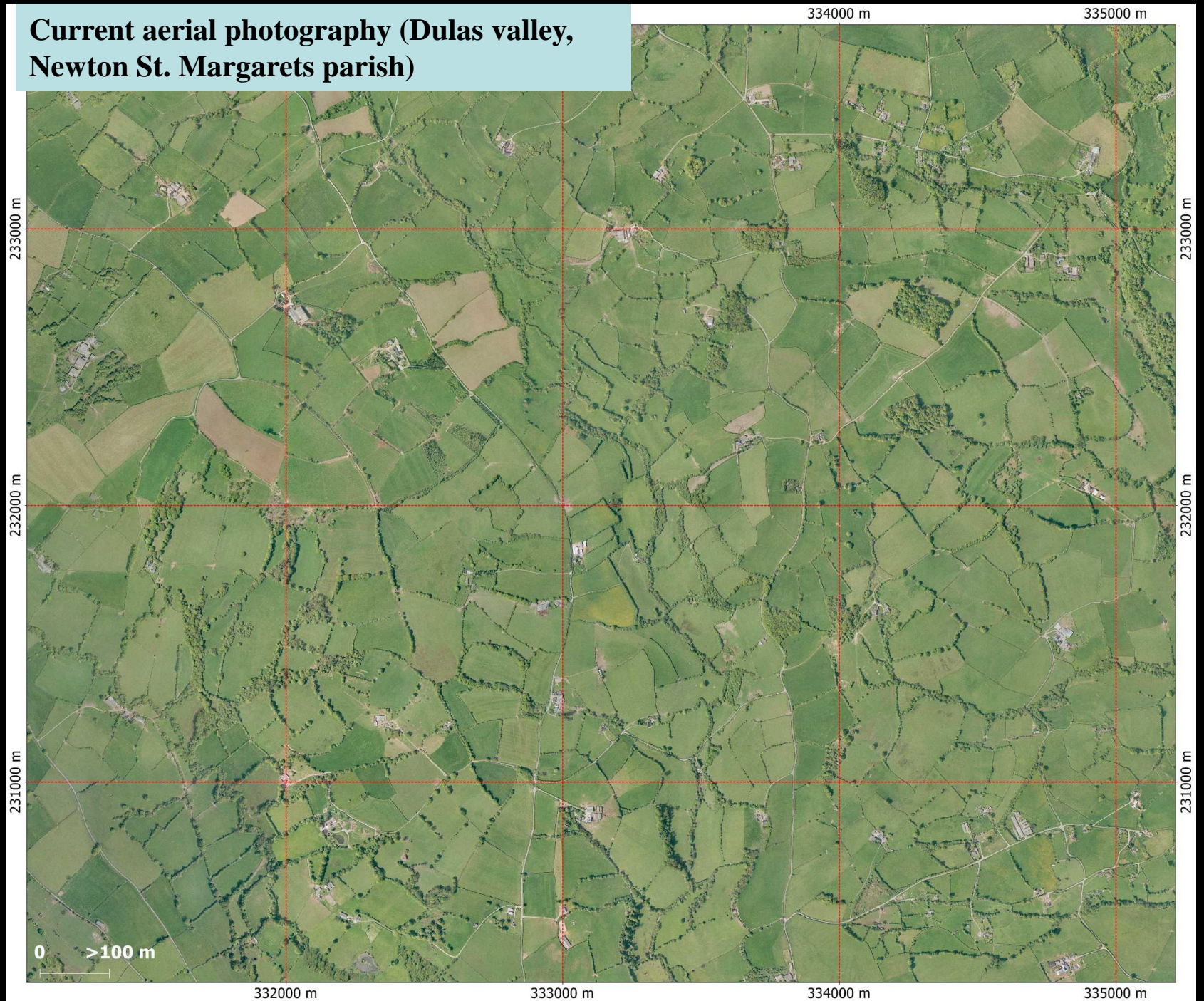


100 m

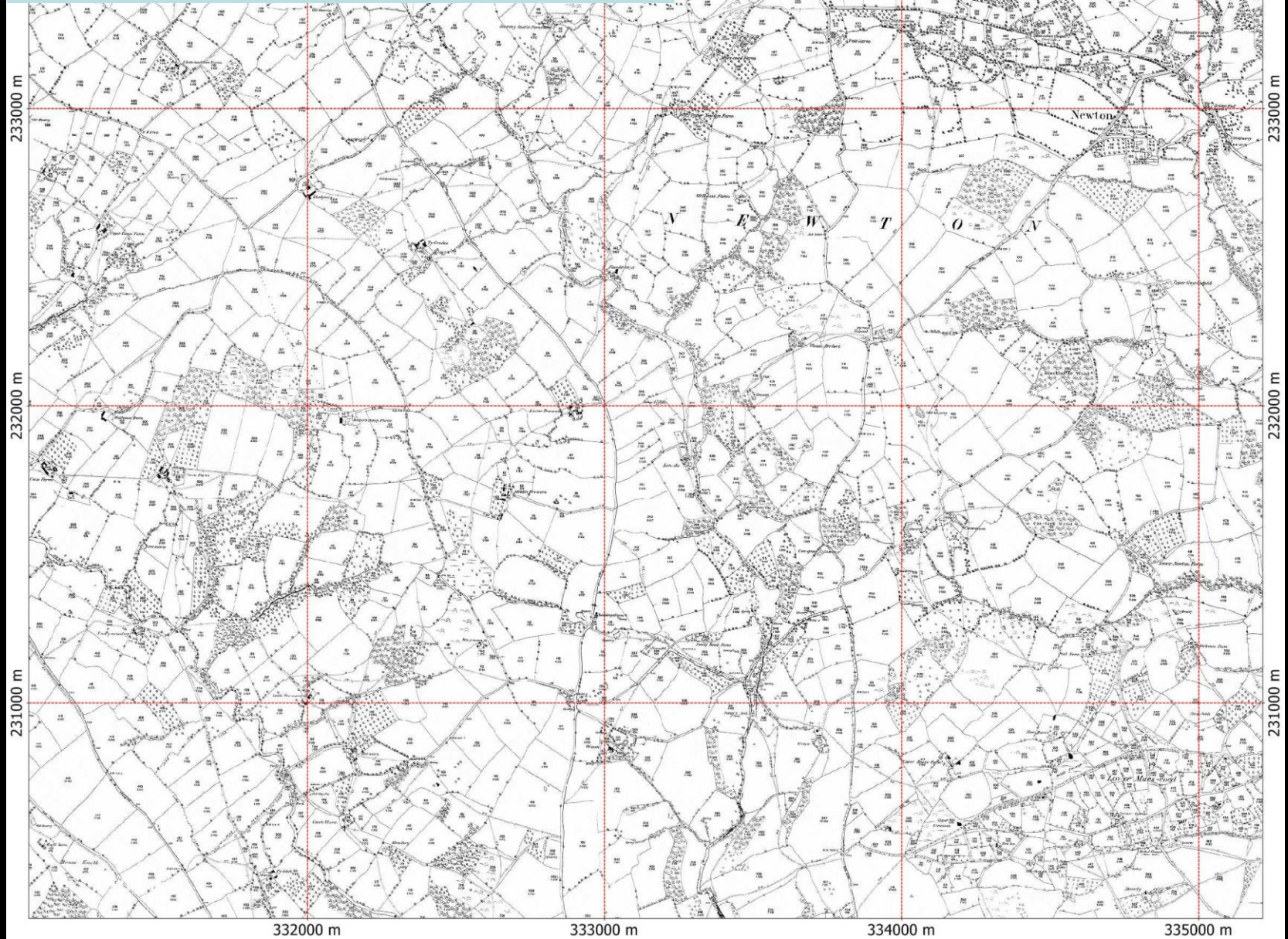


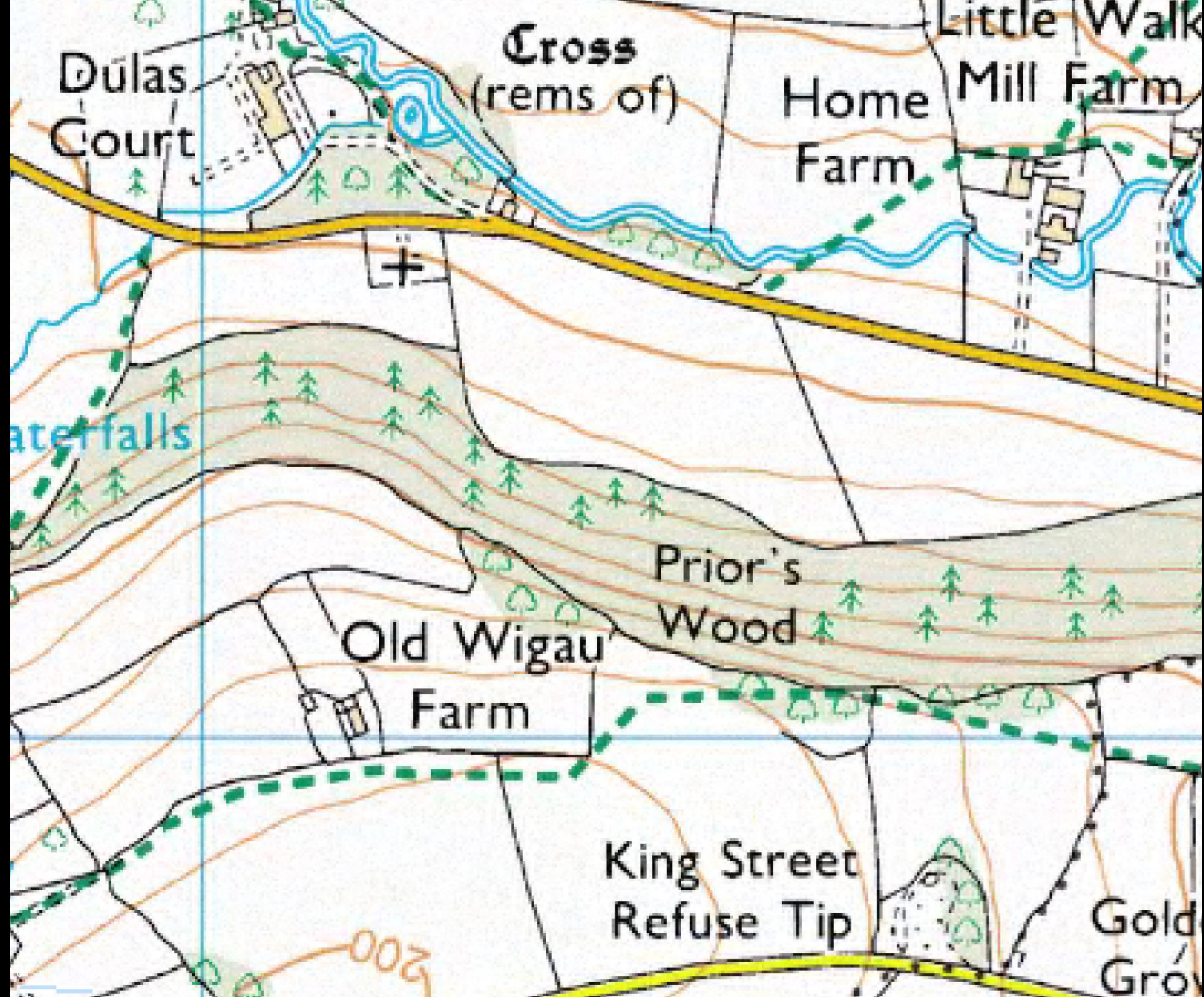
0 100 m

Current aerial photography (Dulas valley, Newton St. Margarets parish)



1884 25" to mile geo-referenced in GIS to modern grid (Dulas valley, Newton St. Margarets)





Dulas Court

Cross (rems of)

Home Farm

Little Walk Mill Farm

Waterfalls

Old Wigau Farm

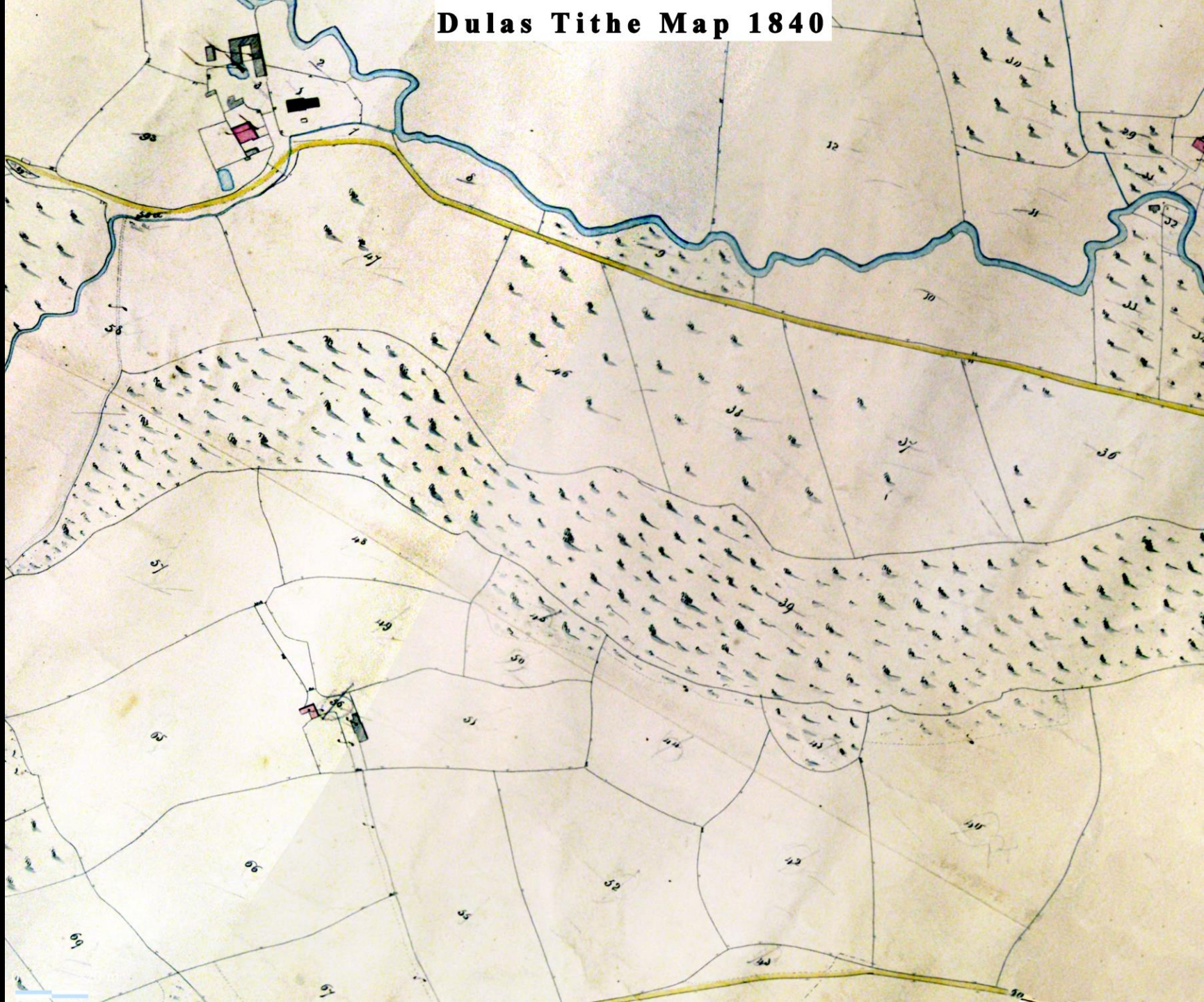
Prior's Wood

King Street Refuse Tip

Gold Gro

200

Dulas Tithe Map 1840



RAF AP July 1946



0 >20 m

AP 2000



0 >20 m



337355 m

OS 1886

337405 m

337455 m

O 34.427

R

S

229120 m

229120 m

229070 m

229070 m

190
2.607

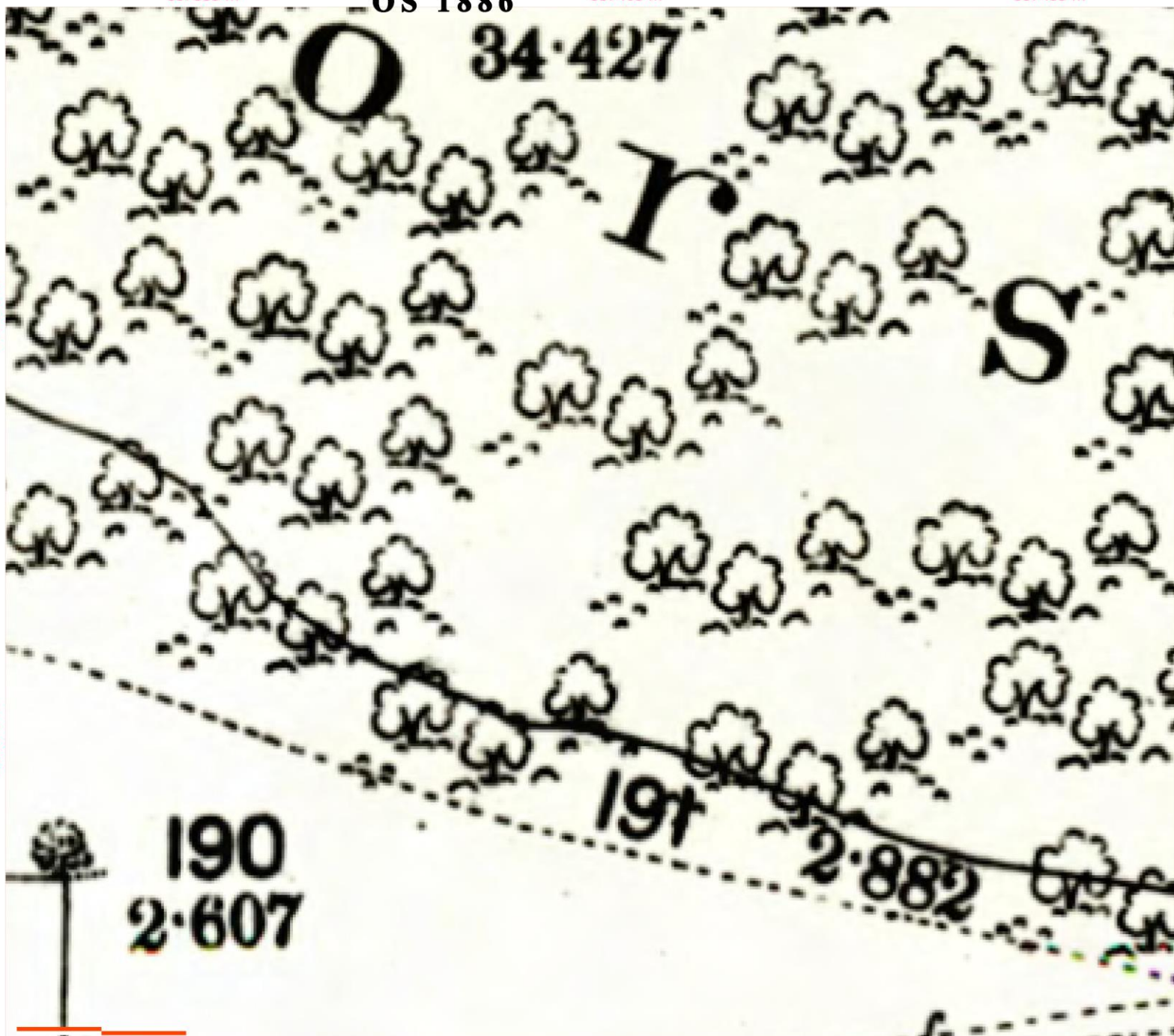
191

2.882

337355 m

337405 m

337455 m



337355 m

RAF 1946

337405 m

337455 m

229120 m

229120 m

229070 m

229070 m

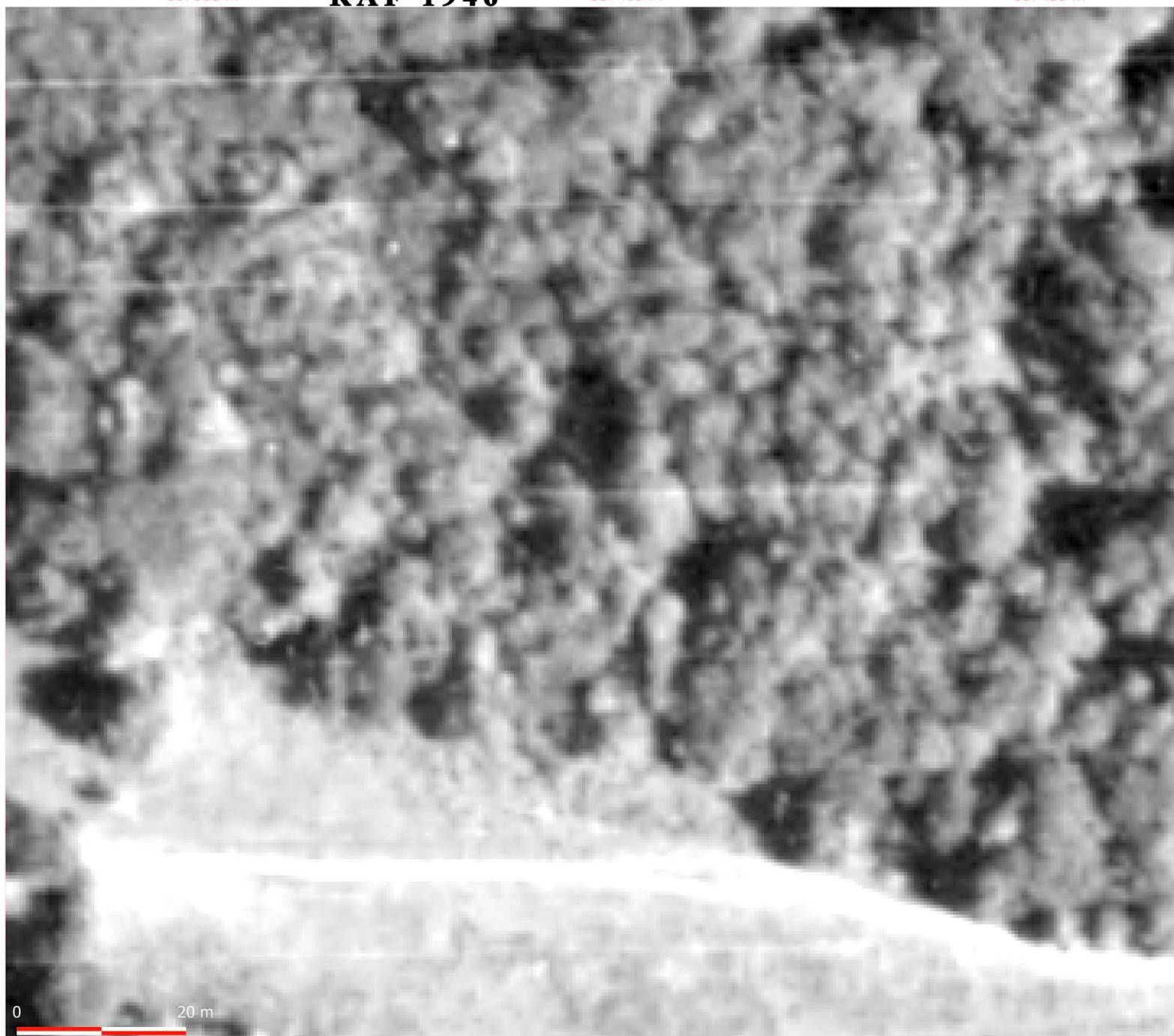
0

20 m

337355 m

337405 m

337455 m



AP 2000

337355 m

337405 m

337455 m

229120 m

229120 m

229070 m

229070 m

0 20 m

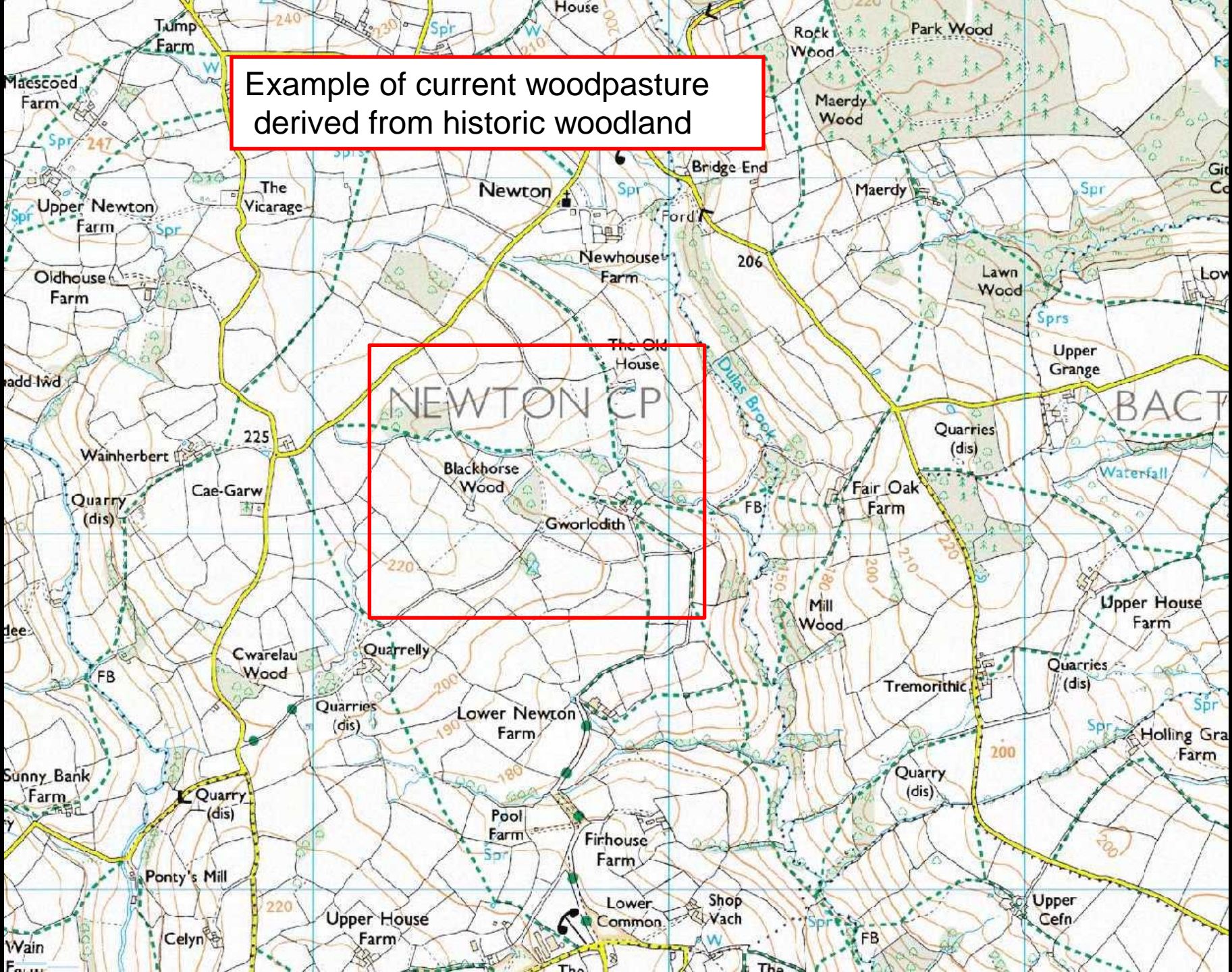
337355 m

337405 m

337455 m



Example of current woodpasture derived from historic woodland



334500 m

334700 m

232250 m

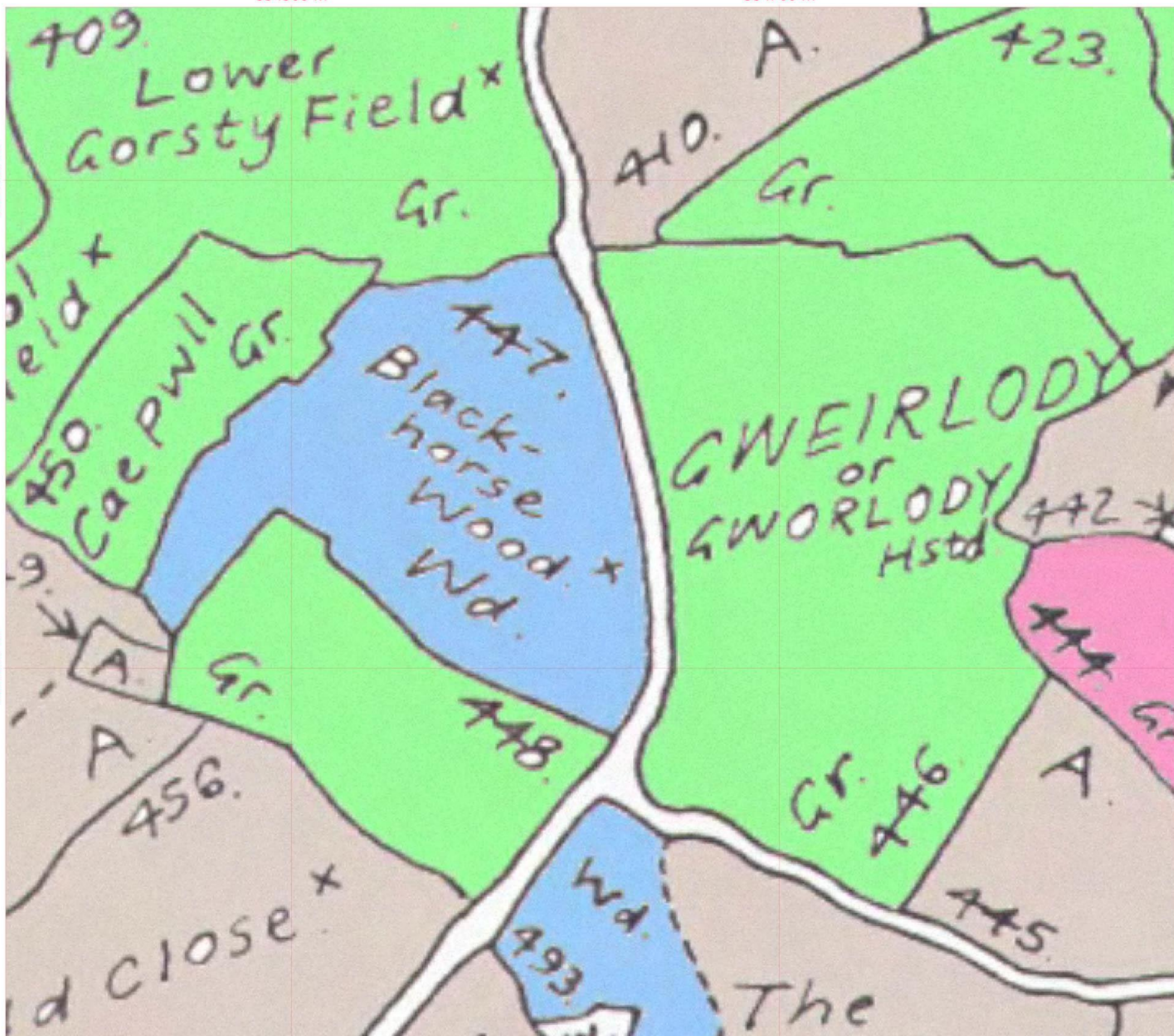
232250 m

232050 m

232050 m

334500 m

334700 m



334500 m

334700 m

7.127

232250 m

232250 m

232050 m

232050 m

401
6.050

395
2.801

405
1.885

402
1.085

398
1.847

404
2.409

403
5.036

Blackhorse Wood

F.P.

397
8.874

459
2.865

F.P.

462
2.409

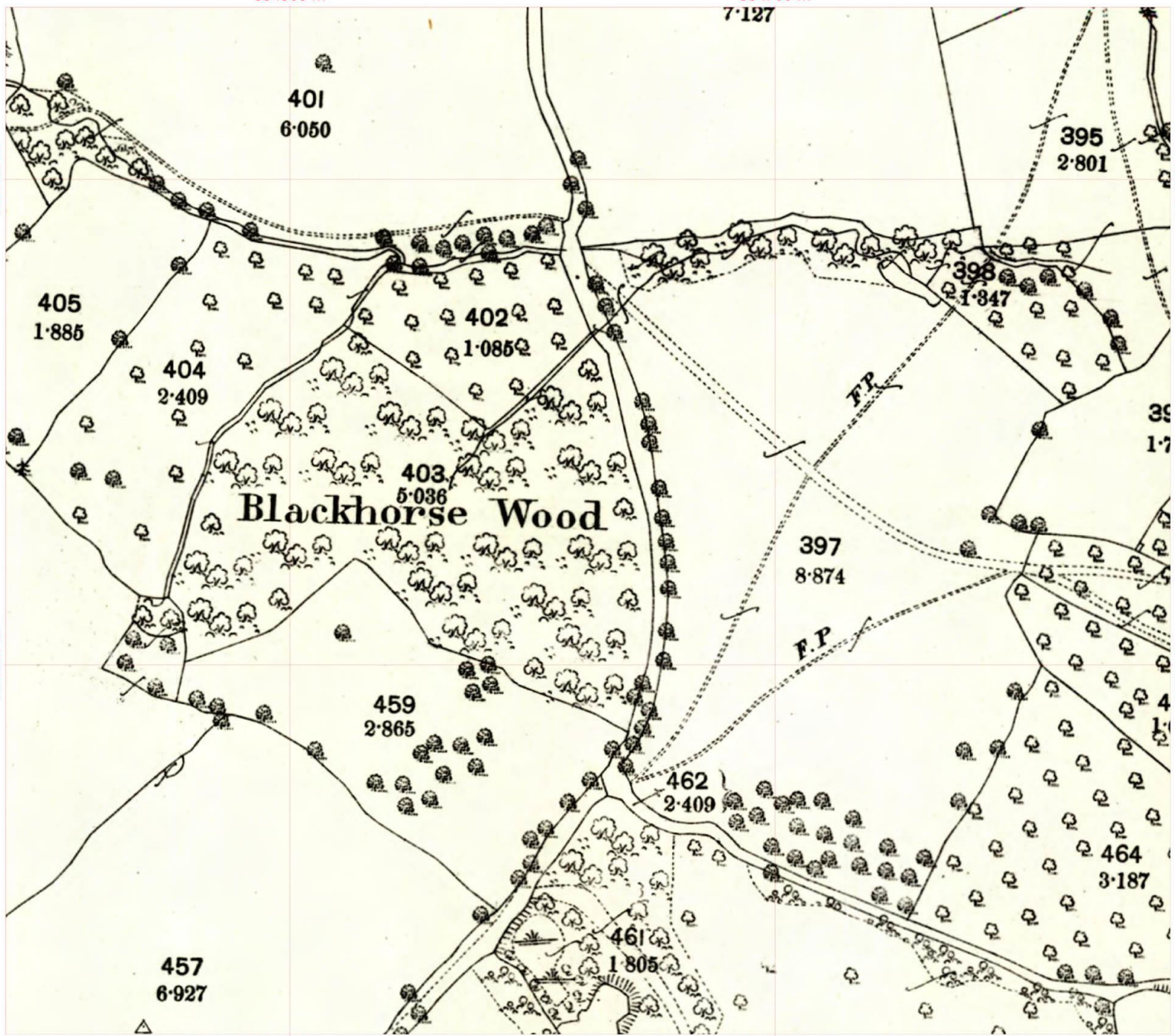
464
3.187

457
6.927

461
1.805

334500 m

334700 m



334500 m

334700 m

AP 2000

232250 m

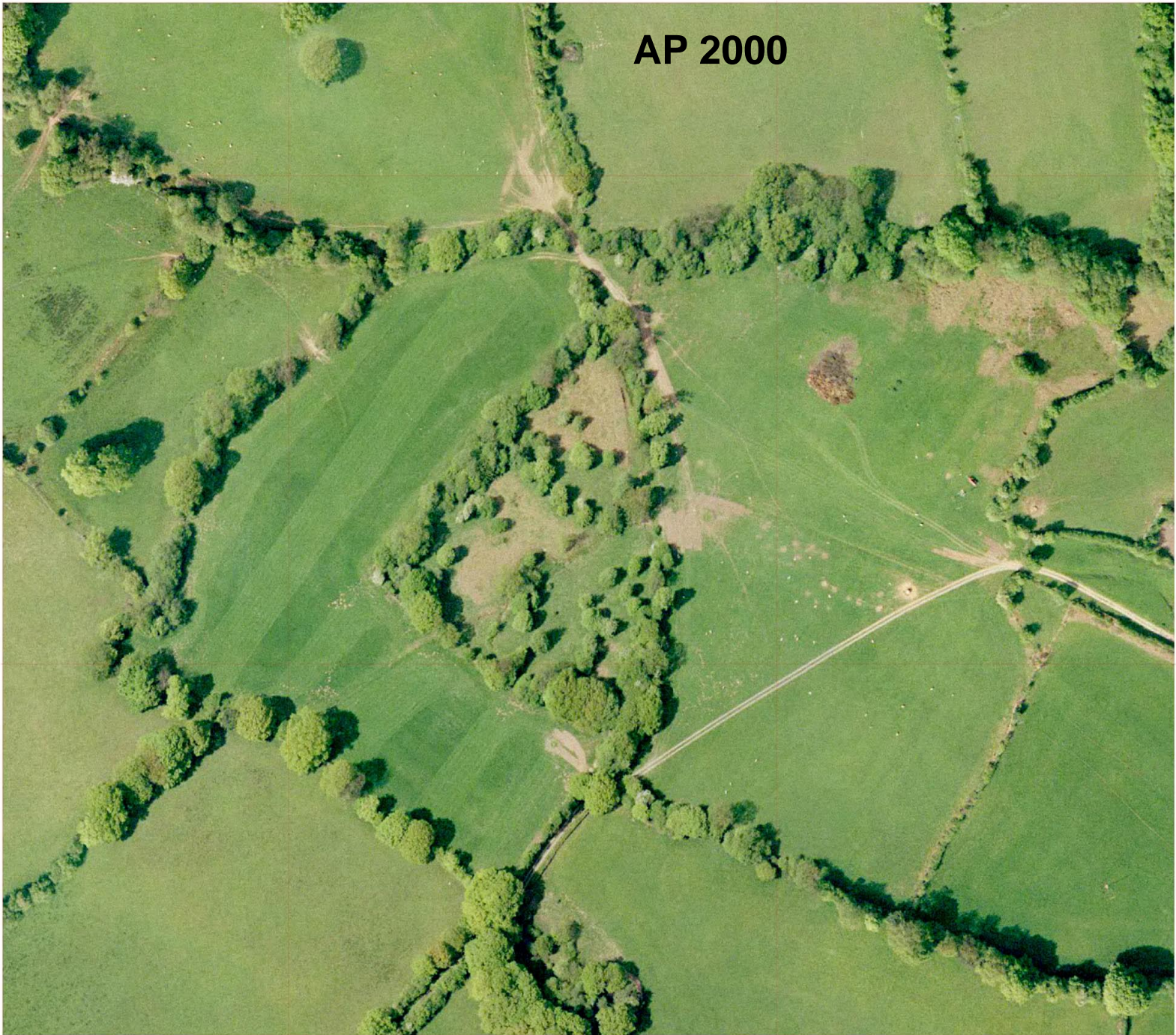
232250 m

232050 m

232050 m

334500 m

334700 m



APGB April 2021

334500 m

334700 m

232250 m

232250 m

232050 m

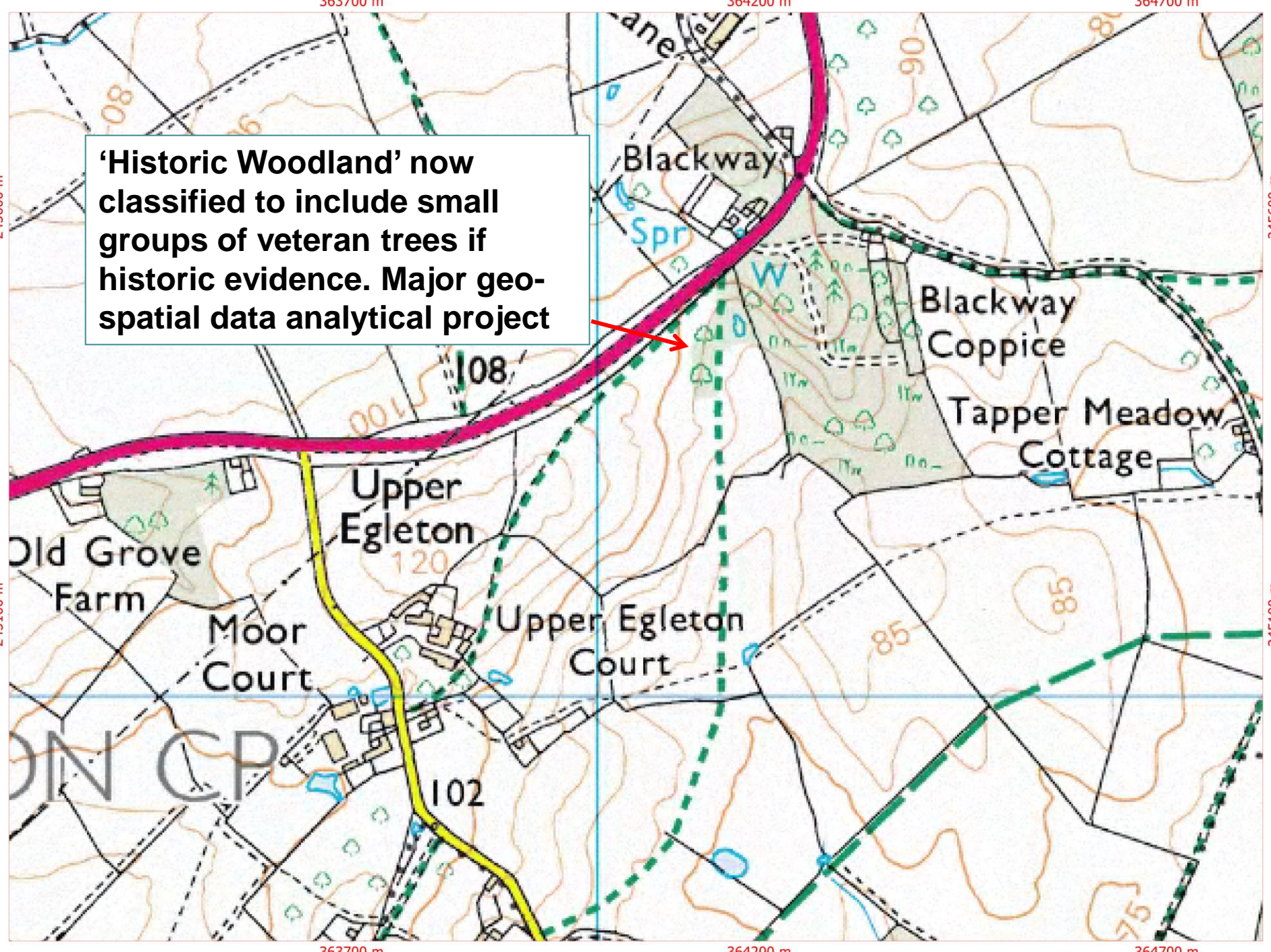
232050 m

334500 m

334700 m



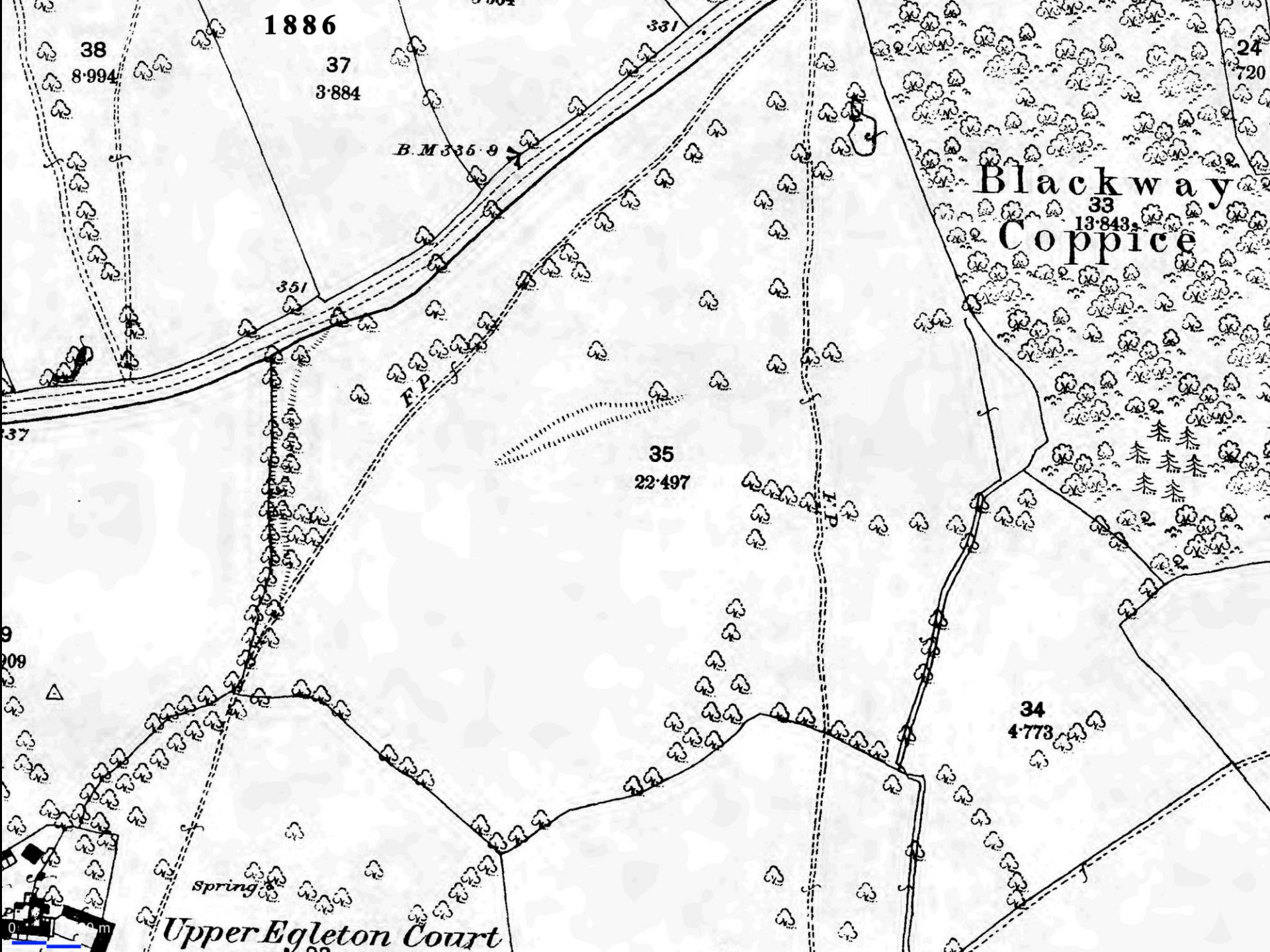
‘Historic Woodland’ now classified to include small groups of veteran trees if historic evidence. Major geo-spatial data analytical project



'New' wood pasture
site at Eggleton







1886

38

8-994

37

3-884

B.M. 335.9

331

351

F.P.

Blackway
33
13,843
Coppice

24

720

35

22,497

34

4,773

spring

Upper Egleton Court

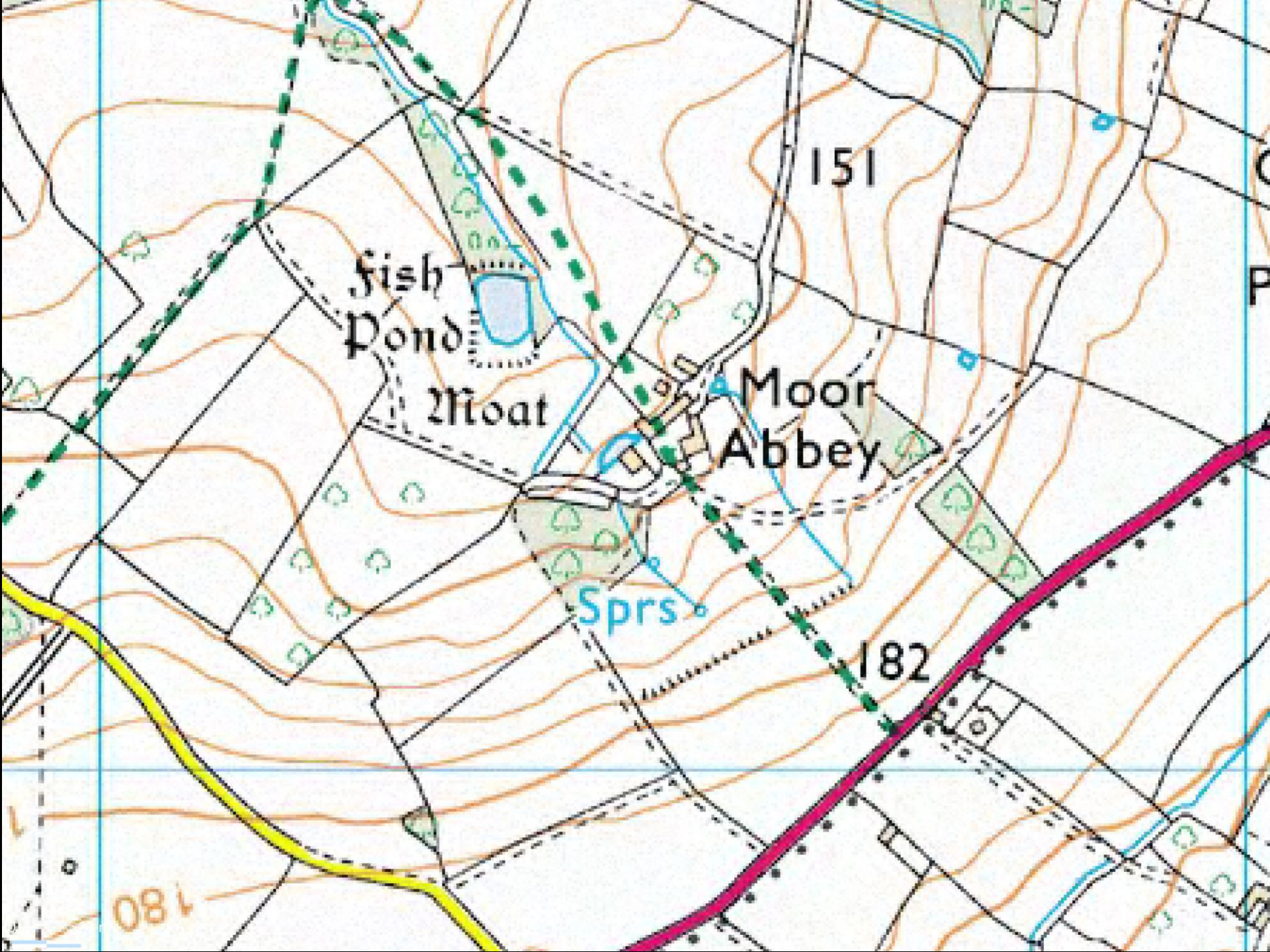


APGB April 2021





0 20 m



Fish Pond

Moat

Moor Abbey

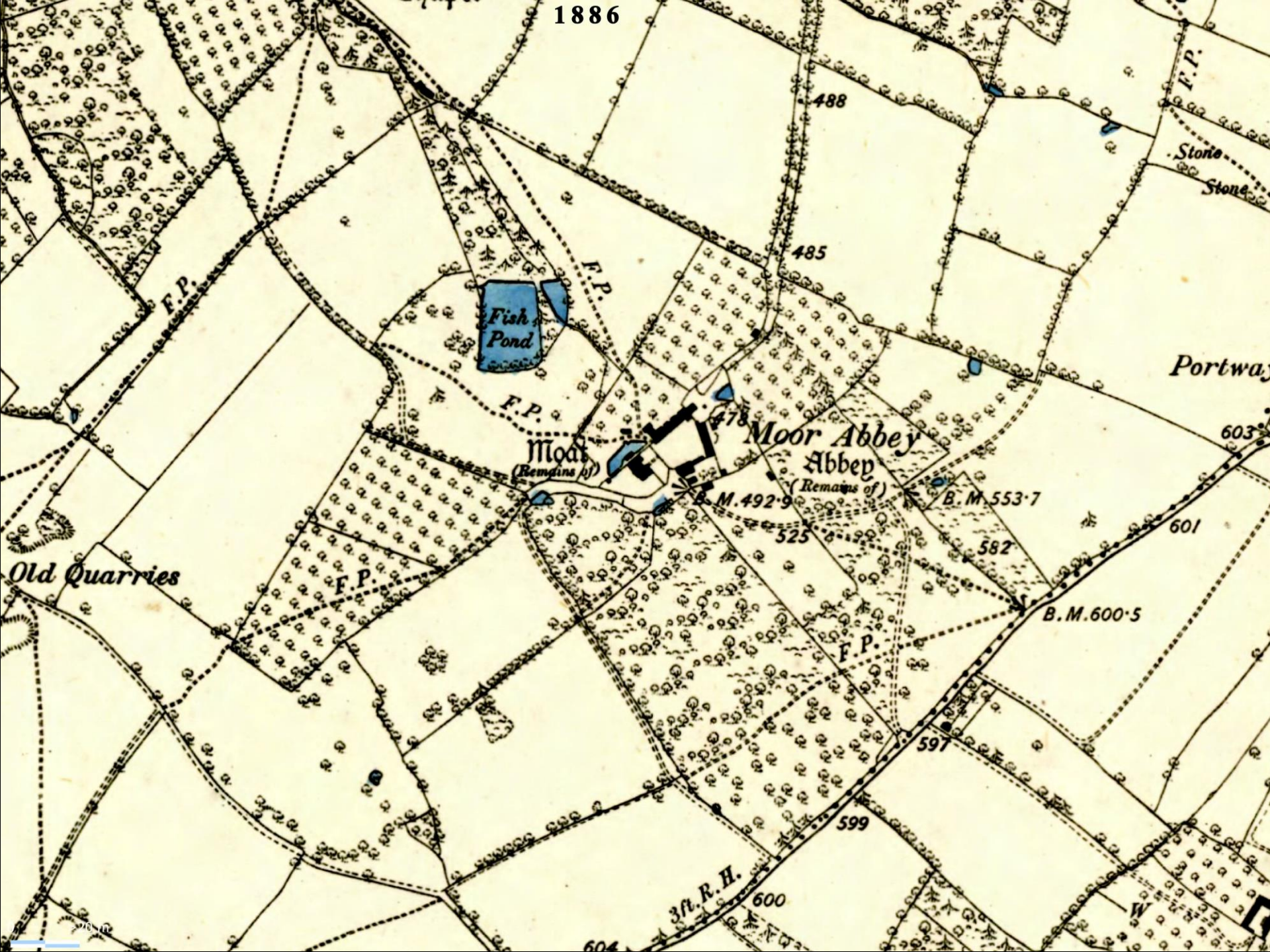
Sprs

151

182

180

1886



APGB April 2021



0 >20 m



0 20 m



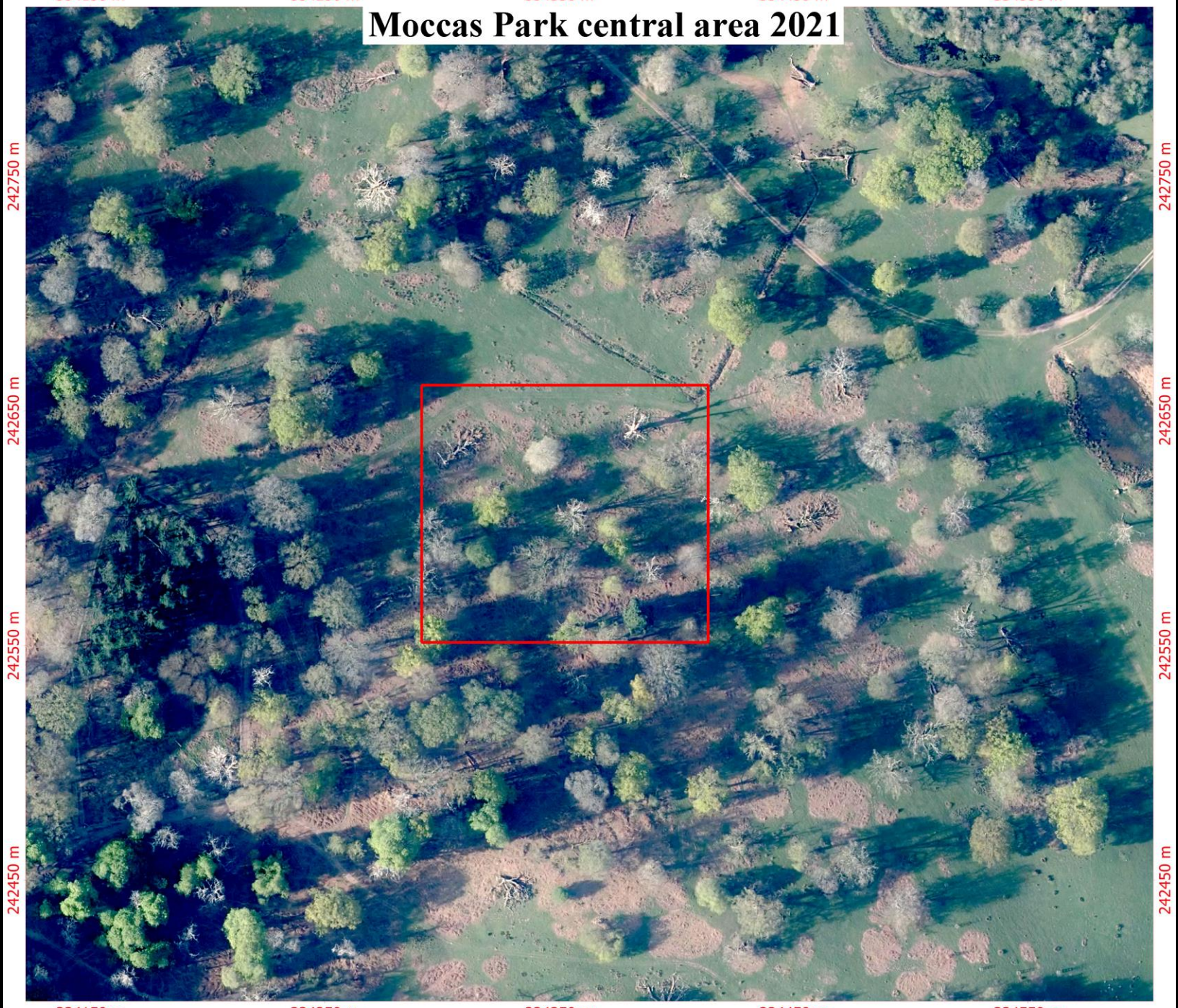
Moccas Park 2021

Time lapse geo-referenced aerial photography to display recent stress in veteran oaks.

The case of Moccas Park NNR



Moccas Park central area 2021



334150 m

334250 m

334350 m

334450 m

334550 m

242750 m

242650 m

242550 m

242450 m

242750 m

242650 m

242550 m

242450 m

334300 m

334350 m

334400 m

2021

0

10 m



242600 m

242600 m

334300 m

334350 m

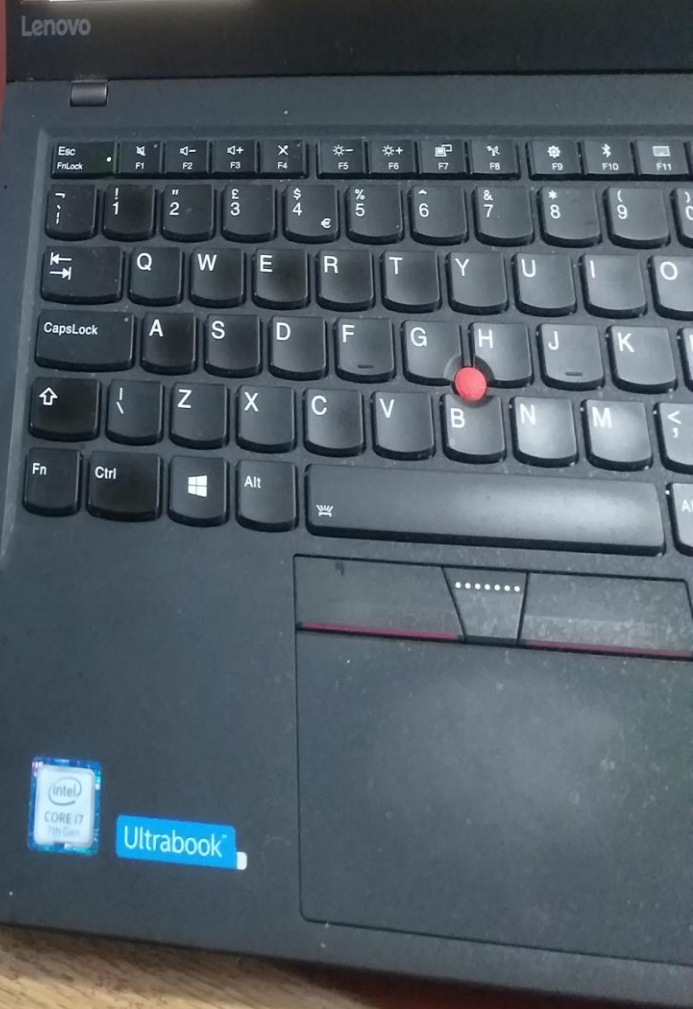
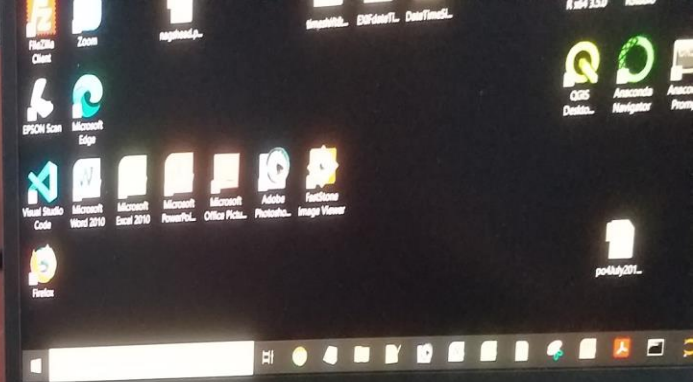
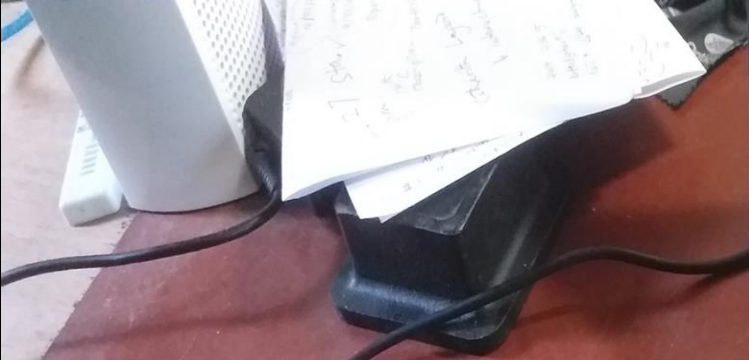
334400 m

242550 m



Colwall hedgerow survey using 'geo-tagged' mobile phone photos



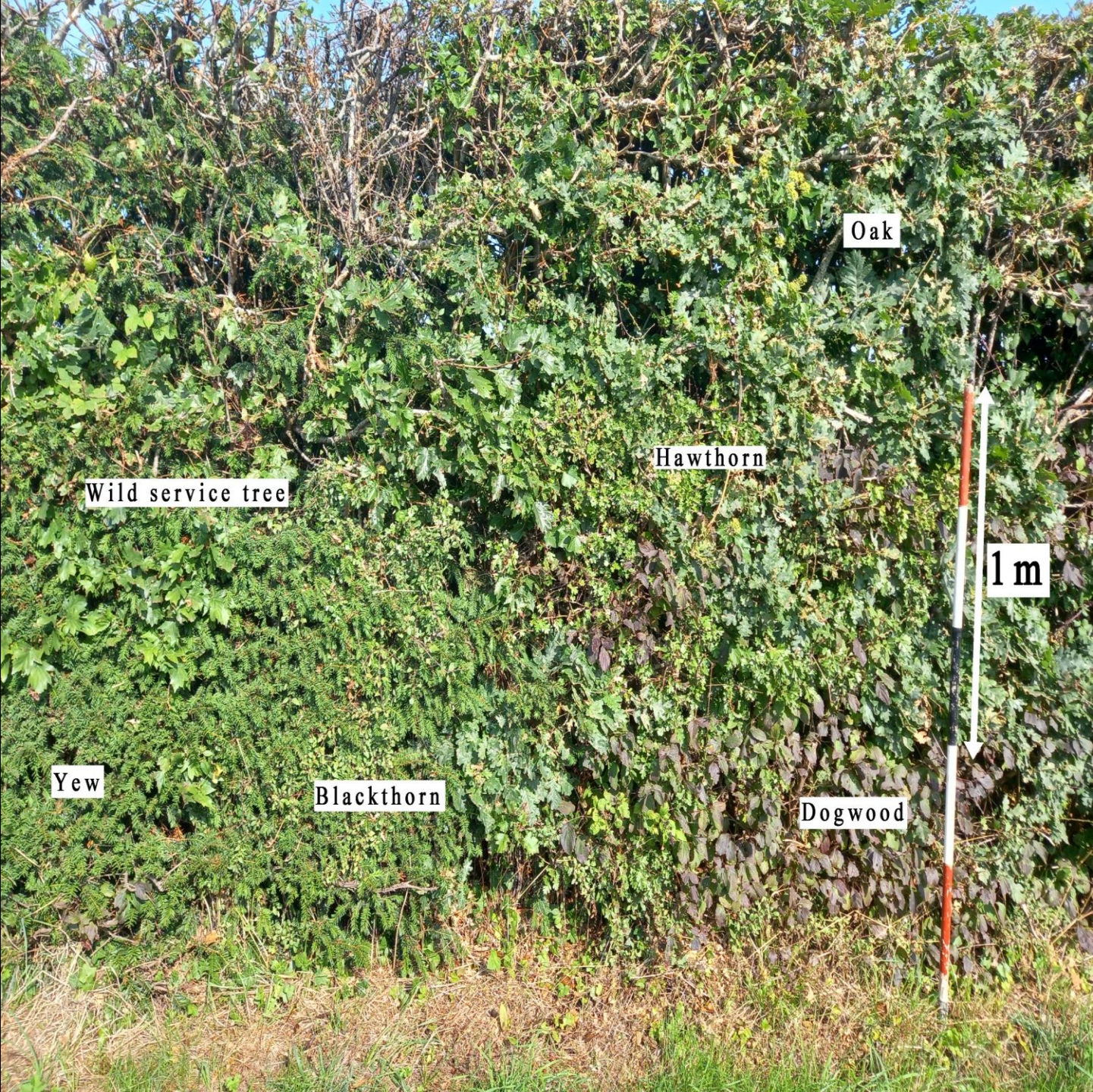




20220601_102856.jpg Properties

General Security Details Previous Versions

Property	Value
EXIF version	0220
GPS	
Latitude	52; 7; 52.3297000000002042
Longitude	2; 55; 48.043199999999999
Altitude	126
File	
Name	20220601_102856.jpg
Item type	JPG File
Folder path	C:\Geoserver2020\QGIS\QGISes...
Date created	02/06/2022 07:47
Date modified	02/06/2022 09:16
Size	1.63 MB



Oak

Hawthorn

Wild service tree

1 m

Yew

Blackthorn

Dogwood

Mobile photo macro setting for close up





Bee orchid from Hurstans Farm Sollers
Hope botanical survey of meadows for
potential Local Nature Site status

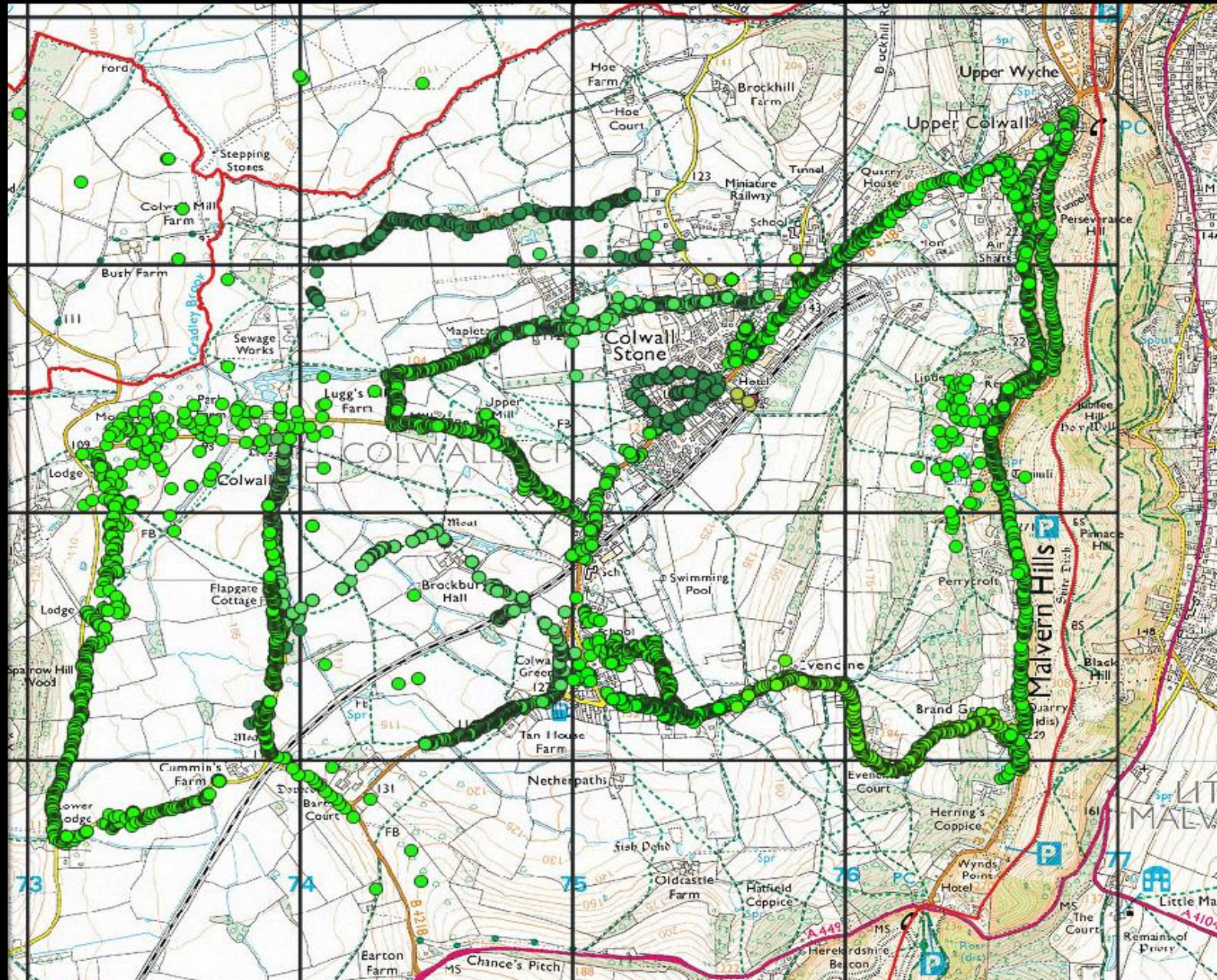
Oak hook tip part of recording from
moth traps at Fair oak Farm Dulas for
uploading to county moth recorder



Recording all the Colwall hedgerow trees



Location of hedgerow survey (+ some landscape) GPS mobile photos 2022



Walking on footpaths from one hedge to another is an opportunity to geo-tag landscape images

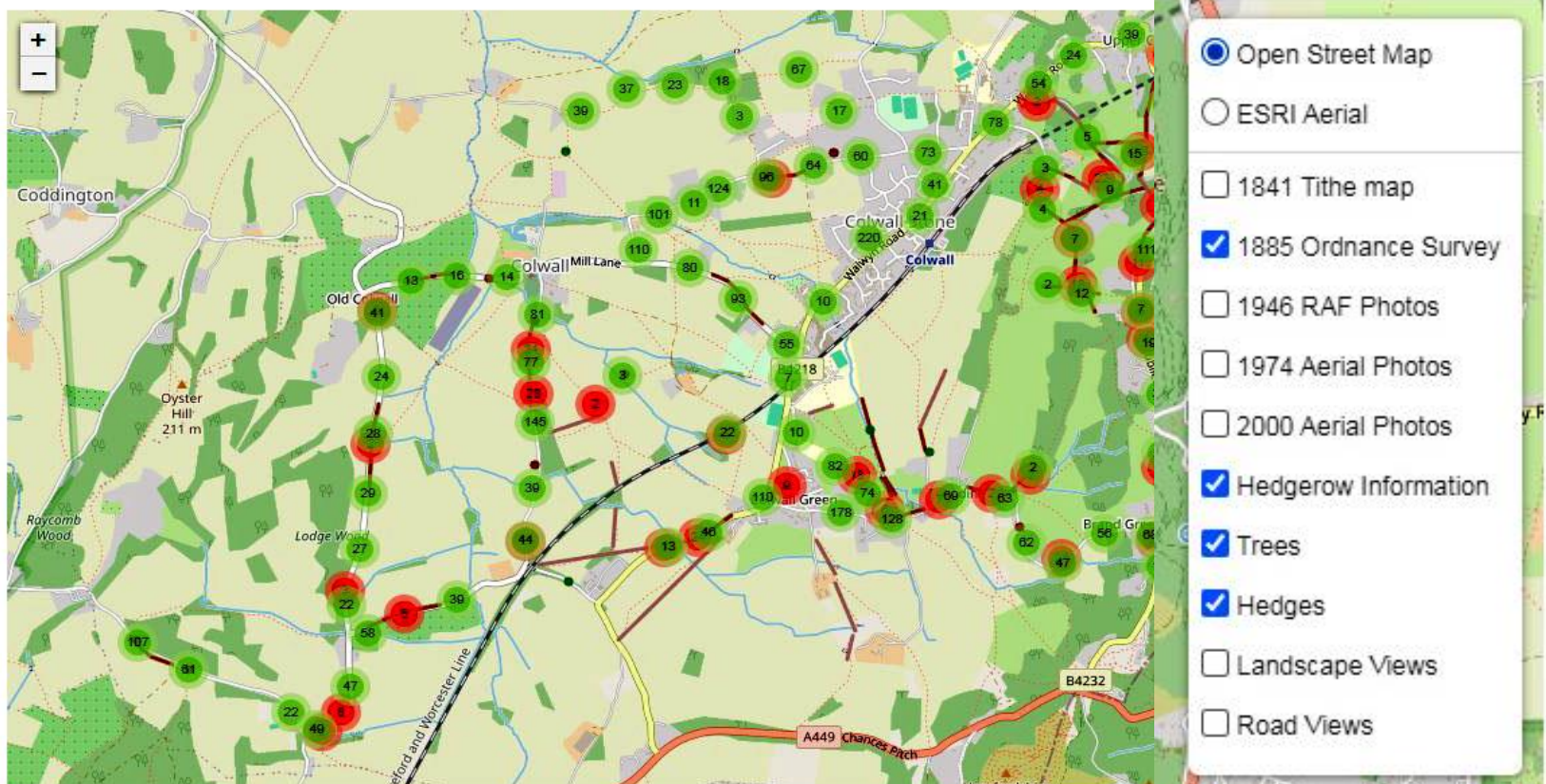


Results placed on the parish council website (QGIS2WEB + Leaflet) includes clickable historic maps and air photos

colwall-pc-data.org.uk/hedgesurvey/Hedge_Map.html

Interactive Map

Click [here](#) to read how to use this map (opens in new tab)



The Opacity sliders change the transparency of a map layer, when the map layer is selected.

1841 Tithe Map

1885 1st Edition Ordnance Survey

1946 RAF Photos

1974 Aerial Photos

2000 Aerial Photos

Last Updated: 2023-11-26

Vector point/line layer was all geo-tagged and species data for hedgerow lengths

Interactive Map

Click [here](#) to read how to use this map (opens in new tab)



Whole project needs to be placed online in an interactive user friendly way. I've been trying to develop Geoserver running on Tomcat (as advised) I'm on Ubuntu server 22.04.

The screenshot displays the GeoServer web interface. At the top left is the GeoServer logo. The top right shows the user is logged in as 'admin' with a 'Logout' button and a language dropdown set to 'en'. The main content area is titled 'Welcome' and provides an overview of the server's capabilities, including 24 layers, 4 layer groups, 10 stores, and 8 workspaces. It also includes two warning messages about default passwords and a note about strong cryptography. Below this, there are sections for 'GeoServer Web Map Service' (with WMS 1.3.0 and 1.1.1 options), 'GeoServer Web Map Tile Service' (with TMS 1.0.0, WMS-C 1.1.1, and WMTS 1.1.1 options), and 'GeoServer Web Feature Service' (with WFS 2.0.0, 1.1.0, and 1.0.0 options). A left-hand navigation menu is visible, categorized into About & Status, Data, Services, Settings, Tile Caching, and Security.

GeoServer Logged in as admin. Logout en

Welcome

GeoServer Web Service, admin access to 8 workspaces, with 28 layers.

Designed for interoperability, GeoServer publishes data from any major spatial data source using open standards. For more information visit [OSGeo](#).

- 24 Layers [Add new layer](#)
- 4 Layer groups [Add new layer group](#)
- 10 Stores [Add new store](#)
- 8 Workspaces [Add new workspace](#)

⚠ The master password for this server has not been changed from the default. It is **highly** recommended that you change it now. [Change it](#)

⚠ The administrator password for this server has not been changed from the default. It is **highly** recommended that you change it now. [Change it](#)

i Strong cryptography available

GeoServer Web Map Service

A compliant implementation of WMS plus most of the SLD extension (dynamic styling). Can also generate PDF, SVG, KML, GeoRSS

WMS	WMS
1.3.0	1.1.1

GeoServer Web Map Tile Service

A compliant implementation of WMTS service.

TMS	WMS-C	WMTS
1.0.0	1.1.1	1.1.1

GeoServer Web Feature Service

This is the reference implementation of WFS 1.0.0 and WFS 1.1.0, supports all WFS operations including Transaction.

WFS	WFS	WFS
2.0.0	1.1.0	1.0.0

About & Status

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

Data

- Layer Preview
- Workspaces
- Stores
- Layers
- Layer Groups
- Styles

Services

- WMS
- WMTS
- WFS
- WCS

Settings

- Global
- Image Processing
- Raster Access

Tile Caching

- Tile Layers
- Caching Defaults
- Gridsets
- Disk Quota
- BlobStores

Security

- Settings
- Authentication
- Passwords
- Users, Groups, Roles
- Data
- Services

Can't even get Tomcat server to function. I've followed both GeoServer and Tomcat installations to the letter (have current JRE). Is there an easier way? I ask this audience!

Apache Tomcat/10.1.31



If you're seeing this, you've successfully installed Tomcat. Congratulations!



Recommended Reading:

[Security Considerations How-To](#)

[Manager Application How-To](#)

[Clustering/Session Replication How-To](#)

Server Status

Manager App

Host Manager

Developer Quick Start

[Tomcat Setup](#)

[First Web Application](#)

[Realms & AAA](#)

[JDBC DataSources](#)

[Examples](#)

[Servlet Specifications](#)

[Tomcat Versions](#)

Managing Tomcat

For security, access to the [manager webapp](#) is restricted. Users are defined in:

```
$CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 10.1 access to the manager application is split between different users.

[Read more...](#)

Release Notes

Changelog

Migration Guide

Security Notices

Documentation

[Tomcat 10.1 Documentation](#)

[Tomcat 10.1 Configuration](#)

[Tomcat Wiki](#)

Find additional important configuration information in:

```
$CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

[Tomcat 10.1 Bug Database](#)

[Tomcat 10.1 JavaDocs](#)

[Tomcat 10.1 Git Repository at GitHub](#)

Getting Help

[FAQ and Mailing Lists](#)

The following mailing lists are available:

[tomcat-announce](#)

Important announcements, releases, security vulnerability notifications. (Low volume).

[tomcat-users](#)

User support and discussion

[taglibs-user](#)

User support and discussion for [Apache Taglibs](#)

[tomcat-dev](#)

Development mailing list, including commit messages

perhaps the currently being developed and crowd-funded new version of GeoServer 3 will be easily to work with for newbies??



With that, its goodbye from me and thanks for listening!

David Lovelace
david@tilia.org.uk

David Lovelace
david@tilia.org.uk