



The Moorland Association

**RESUME OF METHODS AND RESULTS OF THE MOORLAND ASSOCIATION'S STUDY OF
THE FINAL TRANSMISSION LOCATIONS RECEIVED FROM PLATFORM TRANSMITTING
TERMINALS.**

FOR THE USE OF THE RELEVANT POLICE UNITS ONLY

IMPORTANT NOTE

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DEFINITIONS:

- 1. Moorland Association – ‘M.A.’**
- 2. Police forces / units etc. – ‘the Police’**
- 3. Platform Transmitting Terminals – ‘satellite tags’ – OR – ‘tags’**
- 4. ‘Final Transmission Locations’ which may be referred to by others as the ‘Last Known Fix’**
- 5. hen harrier (*circus cyaneus*) – ‘harrier’**
- 6. Microwave Telemetry Incorporated – ‘M.W.T.’**
- 7. Ordnance Survey – ‘O.S.’**
- 8. Natural England – ‘N.E.’**
- 9. Royal Society for the Protection of Birds – ‘R.S.P.B.’**
- 10. Hawk and Owl Trust – ‘H.O.T.’**

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SECTION 1 – Brief summary of contents.

This document is in response to the following request *(from the Police) – ‘It is stated that your (‘your’ refers to the M.A.) detailed analysis on final transmissions from satellite tags shows that clusters also occur outside of grouse moor areas. Please could you share this analysis with me’*

From the following, and by reference to a great deal more detail which we have available and is too extensive to be included within these notes, it should be noted:

1. The M.A. system of analysing final transmission locations is very accurate (see Section 4).
2. The clusters shown (see Section 8) are particularly good examples, in each case with five birds recorded they clearly illustrate the subject of the request.
3. The further examples of wider final transmission locations (see Section 9) also serve to illustrate the point that harriers are far from being confined to moorland habitats, the casual observer might be most surprised to see the range of final destinations.
4. It is the M.A.’s belief that, were all final locations to be made available (see Section 2 and Section 3 – which could potentially total some 200/250 birds extra), these varied locations and the wide dispersals demonstrated would be confirmed as regular occurrences.
5. Thus far, M.A. research indicates that final transmissions are very far from being exclusively associated with land used for driven grouse shooting. Indeed, the majority are not, which, whilst being against the flow of misinformed opinion and prejudice, is substantiated by the hard facts the M.A. have to hand.

SECTION 2 – M.A. objectives:

The objectives of the M.A. when deciding to produce accurate locational mapping of final transmissions could not be more straightforward.

The aim was, and continues to be, the compilation of an accurate register of all harriers which have been tagged in England since the commencement of that practice, which is currently understood to be during the 2002 breeding season.

The register will carry an accurate identification of every bird handled by reference to:

FIRST – the tag serial number (usually expressed as # 123456 for example)

SECOND – a further identifier such as:

- **In the case of the M.A. reference system – (expressed as R1-F1-2024 for example)**
- **Or a name ('Ethel' for example) given to a bird by N.E. – the R.S.P.B. – the H.O.T. – or another.**

With such a resource it will be possible to identify (to an accuracy of 100 metres) the final transmission location of every bird, and with the accurate references appended the full history from – initial nesting / ringing – parentage where known – subsequent sightings – and eventual recovery and / or loss of signal – will be recorded.

SECTION 3 – Data sources used and/or required.

The data in respect of every bird tagged during the Hen Harrier Brood Management Trial by the M.A. have been submitted to N.E. and are listed on their hen harrier website:

www.gov.uk/government/publications/hen-harriers-tracking-programme-update/hen-harrier-tracking.update

This website – see 31st December 2023 the date of the M.A. study – contained 97 entries which were split – 41 x M.A. birds and 56 x N.E. birds giving the total of 97.

Unfortunately, of the 97, some 13 sites were listed as confidential and did not carry locational data. This resulted in the accurate mapping results being reduced to 84 locations.

Regrettably, despite requests, the R.S.P.B. will not release any locational data for reasons which the M.A. cannot understand. The three organisations fitting (*virtually all*) tags to harriers are N.E., the M.A. and the R.S.P.B. – with the R.S.P.B.'s withholding of data being most unfortunate. It is presently estimated that some 206 birds (see R.S.P.B. – Bird Crime Report – 2023 – Page 33) could be added to the register were they to change their approach.

The production of a truly comprehensive register is so self-evidently desirable that the non-participation of the R.S.P.B. is both baffling and extraordinary.

SECTION 4 – Methods used to identify and map the data available.

The satellite transmissions report using Latitude and Longitude coordinates – in Degrees / Minutes / Seconds – when communicating with their base station.

These coordinates can then be converted to O.S. references – the resulting data is resolved to an accuracy of 100 metres – this is the O.S. six figure reference level – with O.S. eight figure references then being within 10 metres.

The references are then printed onto:

FIRST – an O.S. 1:50,000 – ‘Landranger’ map (scale: 2 centimetres to 1 kilometre – equivalent to 1.25 inches to 1 mile) to illustrate the general area in question – this map covers an area when printed on A4 @ 80% of approximately 18 kms. x 12 kms. (approximately 11 miles x 7.5 miles).

SECOND – an O.S. 1:25,000 – ‘Explorer’ map (scale: 4 centimetres to 1 kilometre – equivalent to 2.5 inches to 1 mile) to illustrate the precise area in question – this map covers an area when printed on A4 @ 200% of approximately 3.5 kms. x 2.5 kms. (approximately 2 miles x 1.5 miles).

This method, in combination, permits a good general assessment of the area whilst then affording a highly detailed final location.

Examples of the resulting maps can be seen in – Section 7 – Example maps – herein.

SECTION 5 – the M.A. – ‘Status’ – definition system.

With the final locational data to hand, all as described above, it must then be analysed. This is done by virtue of the considerable knowledge which the M.A. have of the areas in question and of the activities carried out thereon. Should there be a question of the definition of land use within an area then the M.A. area / field liaison officers can quickly verify. All of which allows the M.A. to designate the final transmission locations using the following system:

- **BLUE status – transmissions continue.**
- **ORANGE status – position is inconclusive.**
- **RED status – unexplained final transmission on a driven grouse moor.**
- **GREEN status – either an unexplained final transmission on ground unrelated to a driven grouse moor – or – a known event / recovery confirmed as death by natural causes.**

This system will be incorporated into – Section 8 – Examples of clusters in **GREEN** status locations.

SECTION 6 – The mapping scale problem.

When referring to the methods described in Section 4 above, it is also pertinent to comment that there are alternative systems employed, especially by the R.S.P.B. These methods of detailing the final transmission locations are significantly at variance with the M. A. routine as previously described.

For reasons (which confound the M.A.) the R.S.P.B. use two systems:

FIRST – an O.S. 1:250,000 – ‘Road Travel Map’ (scale: 1 centimetre to 2.5 kilometres – equivalent to 1 inch to 4 miles) and any final transmission location is only quoted as being within a 10 kilometre square – this is an O.S. two figure reference (Easting and Northing only) and is therefore within an area of 100 square kilometres which is 10,000 hectares (equivalent to 24,700 acres which is 38 square miles) the square having a hypotenuse of 14.14 kilometres equivalent to 8.78 miles.

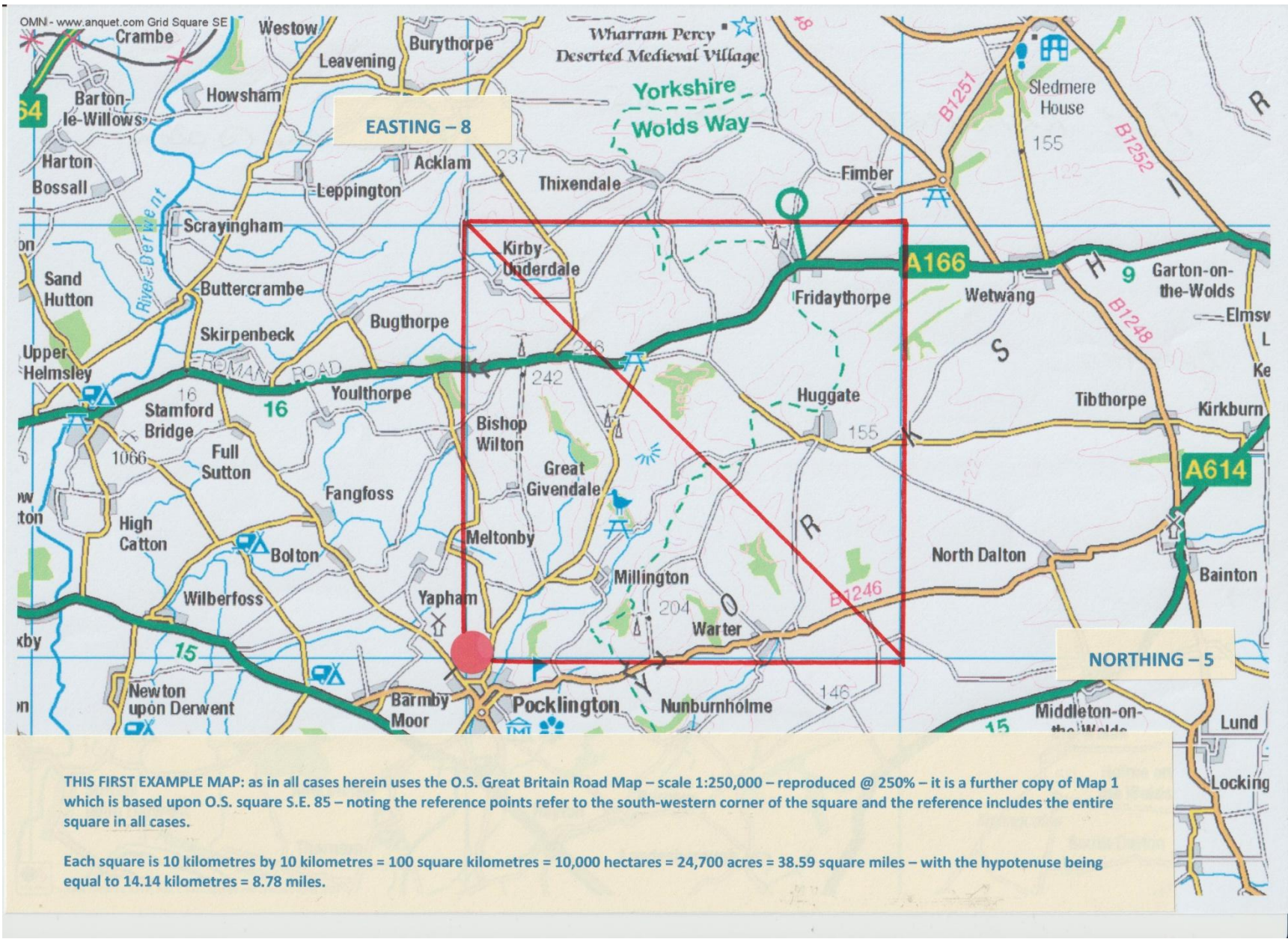
SECOND – again using an O.S. 1:250,000 – ‘Road Travel Map’ but this time with a 20 kilometre square which now covers an area of 400 square kilometres which is 40,000 hectares (equivalent to 98,842 acres which is 154 square miles) the square having a hypotenuse of 28.28 kilometres equivalent to 17.57 miles.

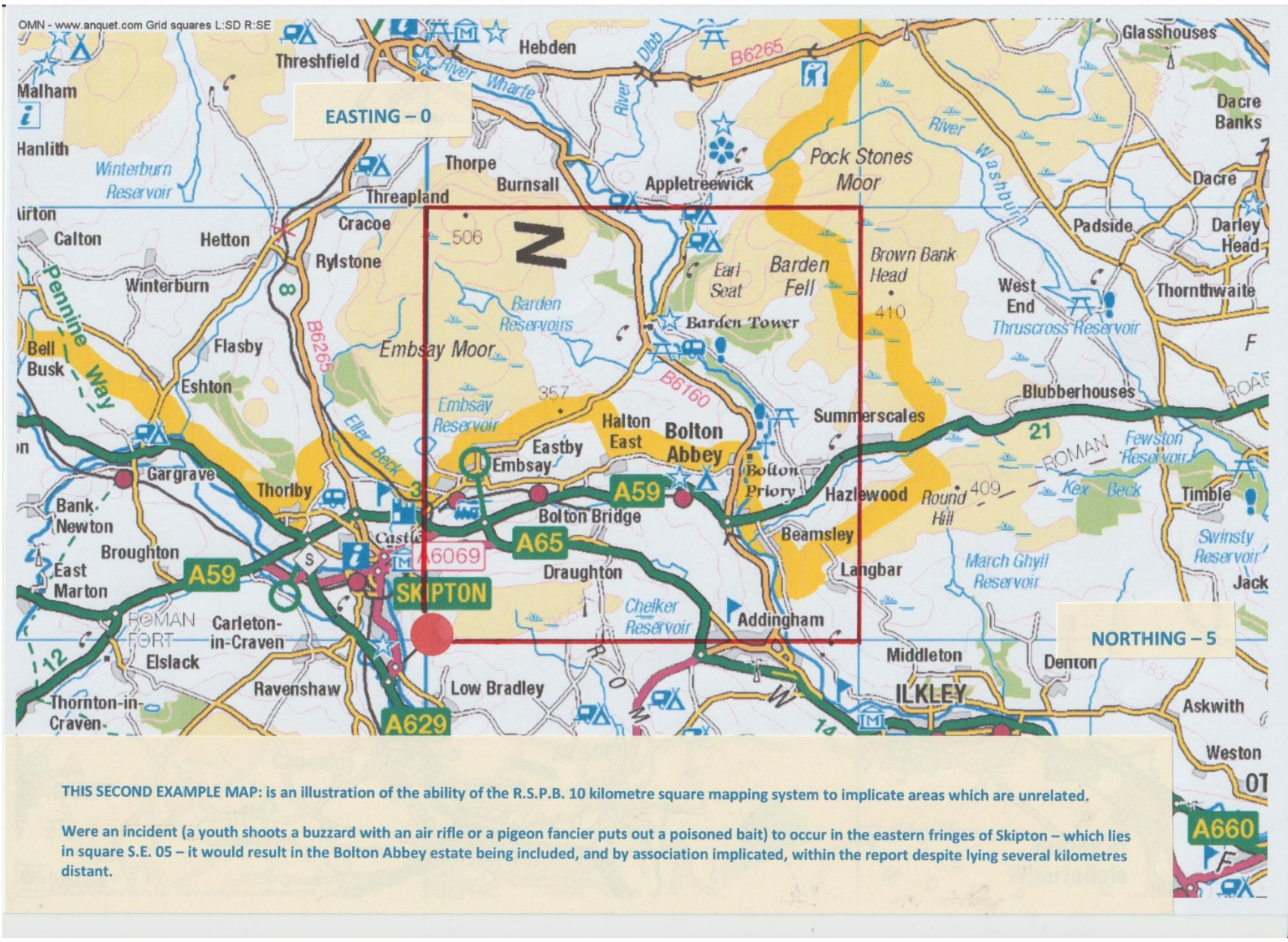
Neither system is of anything other than of general use – at 10 kilometres it is absurdly vague and at 20 kilometres simply useless.

Two illustrations follow (pages 10 and 11) demonstrating the 10 kilometre problem; there is no value in wasting further time with the 20 kilometre alternative.

Notice the first illustration – how wide an area is covered – an incident could be anywhere – potentially 8 plus miles from the reference point – in other situations such as emergency rescue this level of generality would be risible.

The second explains a further problem – say – an incident is recorded in eastern Skipton – this results in an entire estate being implicated despite being some kilometres distant. As such, it can be clearly appreciated that the only acceptable mapping scale is at O.S. six figure / 100 metre scale – nothing less will suffice.





THIS SECOND EXAMPLE MAP: is an illustration of the ability of the R.S.P.B. 10 kilometre square mapping system to implicate areas which are unrelated.

Were an incident (a youth shoots a buzzard with an air rifle or a pigeon fancier puts out a poisoned bait) to occur in the eastern fringes of Skipton – which lies in square S.E. 05 – it would result in the Bolton Abbey estate being included, and by association implicated, within the report despite lying several kilometres distant.

Section 7 – M. A. final transmission location example maps.

The O.S. 1:50,000 – see page 13

In respect of an N.E. bird – named ‘BARNEY’ transmitter serial number # 34343 – tagged 24th August 2018 in Cumbria by N.E. – final transmission 1st November 2018 – east of the A30 – west of Colliford Reservoir – on Bodmin Moor – in Cornwall.

As can be seen, the general locational map is very useful in placing a location into a general context.

The O.S. 1:25,000 – see page 14

In respect once again of ‘BARNEY’ and illustrating very clearly how accurate a plot can be made at this scale. The location could be reached without a compass or G.P.S. as it is so well defined.

These two scales of map also serve to illustrate the point made in Section 5 above – with such detail the M.A. area / field liaison officers can identify and confirm use of the area with certainty.

1:50,000 – BODMIN MOOR



SECTION 8 – Examples of clusters in green status locations.

The clusters will of necessity have to be contained on O.S. 1:250,000 scale maps to encompass the various locations within the given area.

The KIELDER map – illustrates 5 final transmissions – all **GREEN** status – in respect of:

117313 'Grainne' / # 57266 'Alex' / # 213850 'Josephine' / #240290 'Cillian' / # 213932 (R2-M3-22)

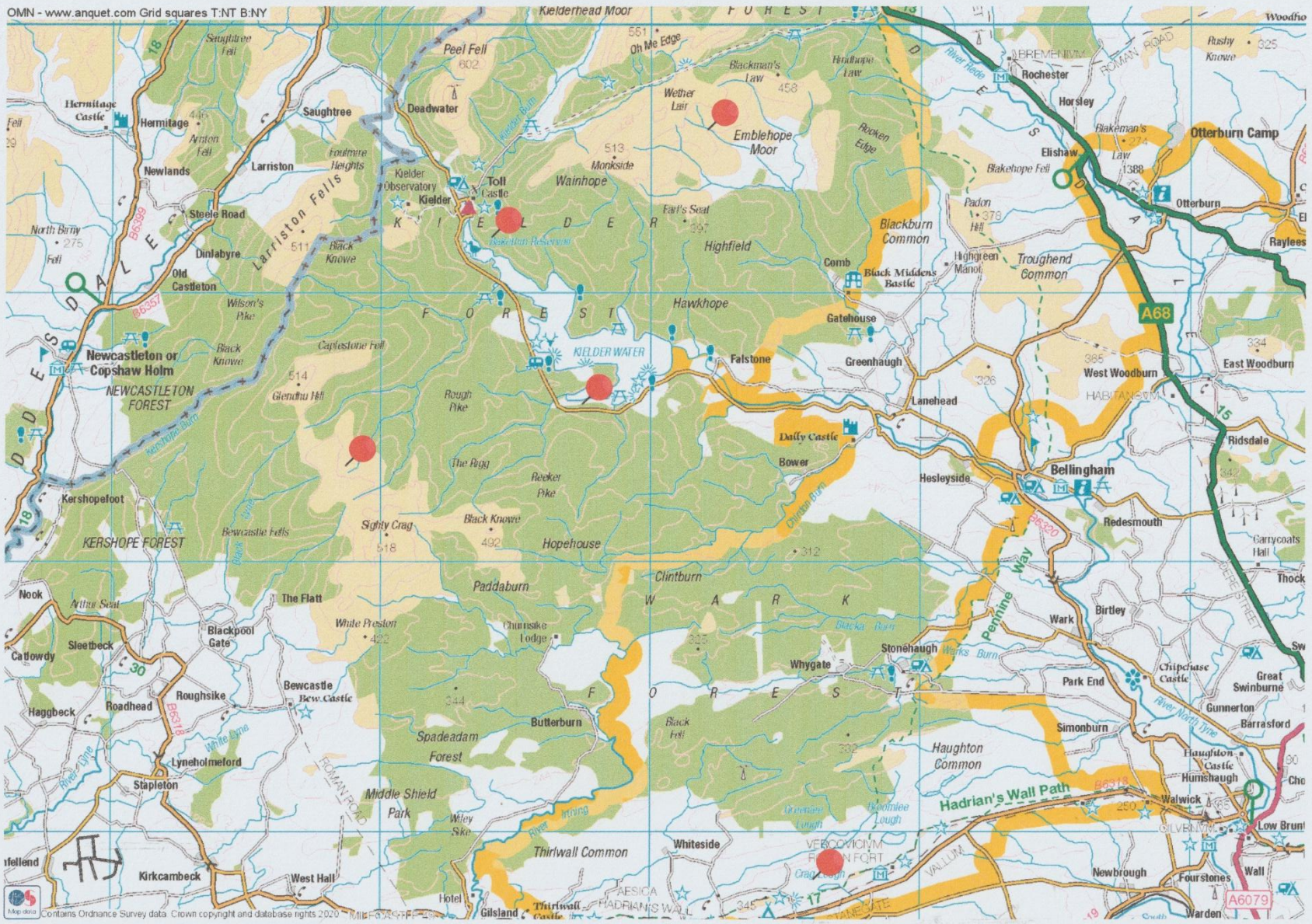
NOTING: both O.S. 1:50,000 and 1:25,000 maps of the locations with further full tagging dates etc. can be supplied – in this case they are not included to save 10 pages.

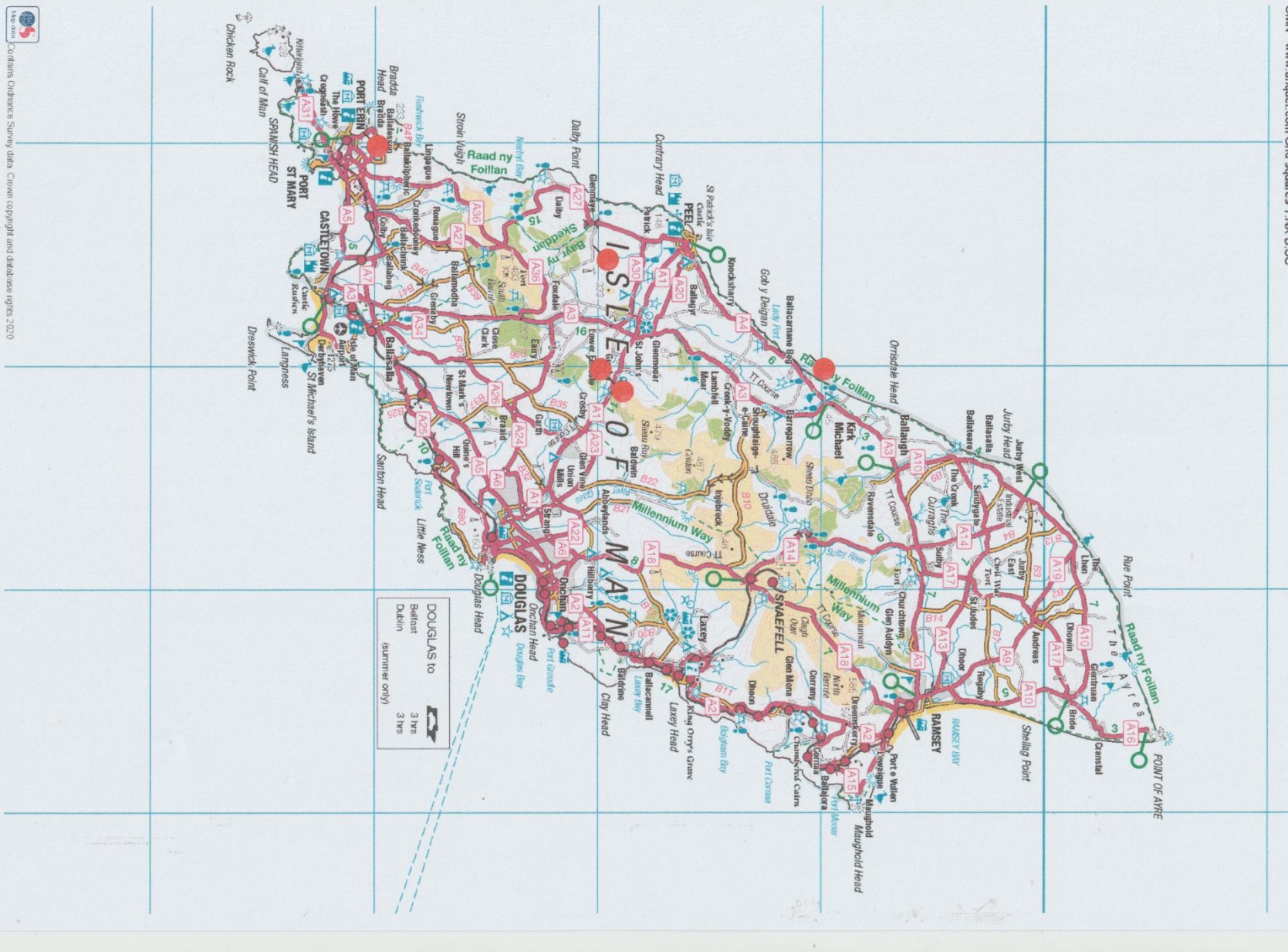
The ISLE OF MAN map – illustrates 5 final transmissions – all **GREEN** status – in respect of:

240292 'Hazel' / # 33325 / # 33334 / # 33328 / # 33324

NOTING: The Isle of Man only has O.S. 1:50,000 mapping beyond the 1:250,000 map used here – the locations with further full tagging dates etc. can be supplied – in this case, once again, they are not included to save a further 5 pages.

Due to the shape of the Isle of Man, a landscape format has been used to allow for a full-size illustration.





SECTION 9 – EXAMPLES (12) OF WIDER FINAL LOCATIONS MAPPED.

Which represent a sample – all **GREEN** status – rather than a comprehensive listing, of varied final transmission locations.

161144 'TOM' – St. Donat's in the Vale of Glamorgan

55146 'JIMMY' – Mulgrave Woods near Sandsend

57273 'TEDDY' – the English Channel north of Caen, France

201123 'NED' – Torresandino south of Burgos, Spain

201125 'INGERID' – the Atlantic Ocean north of Coruna, Spain

201126(a) 'LAGERTHA' – Christchurch Bay near Bournemouth

201120 'MARTIN' – the Atlantic Ocean between Ireland and Iceland

213852 'ETHEL' – within the residential outskirts of Hexham

55147 (R1-M3-19) – the Atlantic Ocean south of Ireland

213919 (R1-F1-21) – the North Sea off Whitby

213925 (R3-M1-22) – Ferriby Sluice on the Humber Estuary

213927(a) (R2-M1-23) – Winsham near Braunton, Devon