The State of Wild Land in the Scottish Highlands

prepared for

Scottish Wild Land Group
in association with
the Scottish Mountaineering Trust and The Cairngorms Campaign

by

Wildland Research Limited
and
Ian Kelly Planning Consultancy Limited

February 2022

Contents

List of acronyms

ASNW – Ancient Semi Natural Woodland

CAWL – Core Area of Wild Land

CEH – Centre for Ecology and Hydrology

CNP(A) – Cairngorms National Park (Authority)

CT – (Landscape) Character Types

ECU – Energy Consents Unit of the Scottish Government

GDP – Gross Domestic Product

HRES – Highland Council Renewable Energy Strategy

HWLDP – Highland-wide Local Development Plan

IUCN – International Union for the Conservation of Nature

LLTNP(A) – Loch Lomond and The Trossachs National Park (Authority)

MCE – Multi-Criteria Evaluation

MCoS – Mountaineering Council of Scotland (now Mountaineering Scotland)

NPF3 – National Planning Framework 3

NPPG – National Planning Policy Guidelines

NSA – National Scenic Area

NTS – National Trust for Scotland

OSWEG – Onshore Wind Energy Guidance

RSPB – Royal Society for the Protection of Birds

RZTV – Reverse Zone of Theoretical Visibility

SAWL – Search Area for Wild Land

S36 – Section 36 of the Electricity Act 1989

JMT – John Muir Trust

SPP – Scottish Planning Policy

SSE – South of Scotland Electricity

SWLG – Scottish Wild Land Group

WLA – Wild Land Area

WRi – Wildland Research Institute

ZTV – Zone of Theoretical Visibility

List of Figures

List of Tables

Executive summary

Wild land in Scotland is currently defined under NatureScot's Wild Land Areas system set-up in 2014, which identifies 42 Wild Land Areas (WLAs) where wildness is found in Scotland. While these areas are identified by Scottish planning policy at national level, there is no absolute protection for them under law and therefore the WLAs remain at risk of development pressures and attritional loss and their wild status is thus under threat of degradation.

Four case study WLAs were studied in detail to determine the landscape changes taking place within them. Current developments that pose the greatest threat are energy generation and associated infrastructure, plantation forest expansion and hill track construction, the latter often associated with estate management.

This project quantifies the current rate of landscape change as regards wild land character in the Highlands of Scotland as a basis for future campaigns for its conservation with appropriate related policy suggestions. Specifically, the project aims to: (a) assess the historic rate of attrition from the 1700s onwards by mapping the impact of road (and rail) development on remoteness and by mapping the visual impact of human development; and (b) look forward to try to predict future threats to the WLAs, and also to compare these to attrition caused by previous developments.

Key findings are that impacts from development over the last 250 years has significantly impacted on the remaining areas of wild land in the case study WLAs. Impacts are principally from road (and rail) building and improvements, which reduce remoteness by providing easier and quicker access to remote wild land areas, and new modern human artefacts in the landscape that have a marked visual impact and a corresponding reduction in wild land quality.

Forms of visual intrusion have changed over the period mapped and have tended to go in phases starting with road and rail and construction, and more recently seeing phases of development in renewable energy: first hydro power in the 50s and 60s, wind energy in the last 20+ years and now small-scale run-of-river schemes. Plantation forestry has also moved in phases but at different rates throughout the period. Associated with all of these, and also with estate management, has been continual expansion of the hill track network.

The rate at which wild land is being lost is sporadic but significant, with rates increasingly markedly during periods of development as remoteness and areas without visual impact from modern human artefacts are reduced. The overall rate of loss appears to be increasing as the scale of development increases from roads and rail to plantation forest, and from hydro schemes to industrial wind farms.

The recent and current planning policy provisions at national and local level have not prevented the continuing attritional loss of Wild Land whilst wind farm applications continue to be random, speculative proposals that are followed by often inconsistent decision making that is characterised by one person's views in each case. There is an absence of positive and consistent planning oversight.

About the consultants:

WRLtd and partners have long-running experience in the mapping and evaluation of wild land in Scotland established over many years of working in this field, including the historic assessment of threats and changes to wild land together with design and application of Landscape Character Assessment, and Wild Land Impact Assessment (WLIA) standards and guidance provided by SNH/NatureScot. WRLtd have an international reputation for excellence in the mapping and modelling of wilderness quality, wild land and rewilding, providing policy advice and technical services to a range of clients including governments, agencies and NGOs. WRLtd is currently engaged in wild land mapping projects in Iceland, France and the UK. The project has been carried out by a small team of experienced professional wild land experts comprising of Dr Steve Carver (Project Lead), Mr Ian Kelly (Planning/Policy) and associates.

Ian Kelly is a professional planner with almost 45 years' experience in all aspects of land use planning including related project management. That experience has been gained in the public, private, and charitable sectors, mostly in Scotland but also including work in Scandinavia, Iceland and Greenland. He has worked on site at Dounreay. He has been addressing the potential effects of renewable energy projects on wild land since 2007 and has given related evidence at numerous wind farm Public Inquiries.

1. Background

1. The mountains, lochs, moors, forests, rivers, and rugged coastlines are all valued hallmarks of Scotland's Highland landscapes. These provide a major focus for outdoor recreation and wildlife conservation. The distinctive qualities of these are perhaps best expressed in those areas dominated by natural and semi-natural vegetation, by the lack of human intrusion from land use or modern artefacts, and by the rugged, challenging, and remote nature of the terrain[1]. While these do not in the main meet the requirements for designation as wilderness areas as defined by the IUCN Cat Ib guidelines or the Wild Europe Working Definition, they do exhibit certain qualities of wildness that are widely referred to in the Scottish context as "wild land"[2,3].

2. These iconic landscapes are closely linked to Scotland's national identity and are a considerable attraction for domestic and foreign tourists, and for local people, as a landscape for both recreation and inspiration. Parts of the Highlands are also contested landscapes, wherein the label "wild" is a potential source of conflict when considering the history of the Highland Clearances and recent concerns over land reform, land use and ownership[4].

3. Despite the designation of 42 Wild Land Areas (WLAs) in the 2014 National Planning Policy Framework and wider recognition of their value among the Scottish public, these wild areas remain under threat from overuse and development.

4. This report has been commissioned by the Scottish Wild Land Group, in association with the Scottish Mountaineering Trust and The Cairngorms Campaign as a strategic mapping and policy assessment of the state of wild land in the Scottish Highlands. The work has been carried out by Wildland Research Limited and Ian Kelly Planning Consultancy Limited.

[1] Carver, S., Comber, A., McMorran, R. and Nutter, S., 2012. A GIS model for mapping spatial patterns and distribution of wild land in Scotland. Landscape and urban planning, 104(3-4), pp.395-409.
[2] Aitken, R., Watson, R.D. and Greene, D., 1992. Wild land in Scotland–A review of the concept. unpublished report.
[3] Scottish Natural Heritage, 2002. Wildness in Scotland's countryside. Edinburgh, Scottish Natural Heritage.
[4] Deary, H. and Warren, C.R., 2017. Divergent visions of wildness and naturalness in a storied landscape: practices and discourses of rewilding in Scotland's wild places. Journal of Rural Studies, 54, pp.211-222.

1.1 Aims and Objectives

5. Wild land in Scotland is currently defined under NatureScot's (previously Scottish Natural Heritage) Wild Land Areas system, set-up in 2014, and which identifies 42 Wild Land Areas where wildness is found in Scotland. While these areas are identified by Scottish planning policy at national level, there is no absolute protection for them under law and therefore the WLAs remain at risk from development pressures and attritional loss, and their wild status is therefore under threat of degradation.

6. Current developments that pose the greatest threat to Scottish WLAs are energy generation and associated infrastructure, plantation forest growth and hill track construction, the latter often associated with estate management. Mapping these developments is a key step in monitoring the current rate of degradation of WLAs in Scotland set against the background of historic land use and settlement patterns.

7. The aims of this project are to present a report and associated supporting material that quantifies the current rate of landscape change as regards wild land character in the Highlands of Scotland, which can be used as a basis for future campaigns for its conservation with appropriate related policy suggestions. Specifically, the project aims to: (a) assess the historic rate of attrition by mapping development from the 1700s onwards; and (b) look forward to try to predict future threats to the WLAs, and to compare these to attrition caused by previous developments.

8. The objectives of the project are to: (a) identify and quantify the changes taking place in wild land within the Highlands, listing both positive and negative drivers that impact on its quality; (b) produce a common baseline against which future studies may be compared; and (c) provide the basis for policy discussion and evaluation. The work will – it is hoped – raise awareness of landscape change in the Highlands as regards wild land and, where evident, the ongoing loss of wildness so as to better inform the public, policy, and decision makers.

9. The mapping work presented in this report follows an approach consisting of combining multiple datasets across multiple time periods to assess past, present and future damage to WLAs, and therefore ascertain the rate at which qualities and attributes of wildness in these landscapes are being degraded. This allows the

nature of this rate (i.e. whether the rate is accelerating or decelerating) to be determined.

10. This is conducted using the proven method of remapping wild land attributes that WRLtd have employed on varied national and international projects, combined with in-field observations of the study areas as chosen by Scottish Wild Land Group. Planning policy and practical experience are used to inform the process throughout.

11. While it is not feasible within the scope of this project to cover the whole of Scotland in the detail required, some changes impacting on wild land are well known and relatively well mapped and so we present data on these covering the entire country. These include wind energy and land cover from 1990 onwards. However, more detailed information on landscape change across a wider range of drivers over longer timescales can only be mapped and quantified at a local scale. To this end, four WLAs have been selected as case studies to be mapped in detail. These are: WLA 19 (Braeroy – Glenshirra – Creag Meagaidh); WLA 20 (Monadhliath) and the adjoining areas around Stronelairg and Melgarve; WLA 34 (Reay – Cassley) and the area around Strathconon; Glen Orrin, Glen Strathfarrar and Glen Affric associated with WLA 24 (Central Highlands). These are shown in Figure 1.1. All these areas have been impacted, to a greater or lesser extent, by improvements in road/rail access, hill tracks, plantation forestry and renewable energy developments, especially around their margins and outwith the originally mapped WLAs.

1.2 Key questions and methods

12. The report focuses on the following list of key research questions.

13. **At what rate is wild land being lost?** This question relies on knowing just how much wild land there is at any one time in order to calculate just how fast it is being lost. In theory, it ought to be possible to repeat the SNH Phase 1 & 2 wild land mapping methodology that was used in the mapping for the 2014 National Planning Framework. This could be done for each the selected case study areas using data on the four attributes of wildness across a range of time periods. However, there are problems associated with doing this since the metrics used have

been developed relative to their numerical range across the whole country and are therefore not easily scaled, nor is there reliable spatial data available at a national scale much before the 1990s. Therefore, we utilise an adaptation of the approach used in SNH Report 12 (2003) by Carver and Wrightham, to identify and map the historical trends in various wild land detractors from the 1750's onwards, starting with the Roy maps and the Ordnance Survey (OS) 1st Series mapping. Thereafter the contemporary OS maps are used as a baseline for dating of current features. The historical trend analysis covers both before and after the June 2014 publication of the SNH Wild Land Areas map, which allows comparison of rates of change using the 2014 WLAs as reference. A range of metrics are calculated from these data including changes to: area of land more than 2 hours walk from the nearest point of mechanised access (including use of hill tracks and a mountain bike to shorten the "long walk in"); area of land lost to plantation forestry or renewable energy developments;, area of land without a view of a renewable energy installation (including large-scale hydro, Run-of-the-River schemes and wind farms), plantation forestry or other human structures. National trends are identified in wind energy and land use from 1990 onward utilising available national datasets.

14. **Is the rate of loss slowing down or accelerating?** Rates of change (principally loss) are calculated from the maps from above and graphed using a range of metrics, such as: the reduction in area more than 2 hours from roads usable by the public; the area of land lost to plantation forestry/hydro schemes; or the area of land without a view of a wind farm, hydro dam/reservoir, or plantation forestry. While these are simple measures of area, they are easily calculated and understood and can be used to estimate rates of change. National rates of change from 1990 onwards are calculated for areas without the view of a wind farm and covered by plantation forest. These are used to supplement the local case studies.

15. **What are the main developments on the ground causing this loss?** Analysis for each case study site enables the identification of the main developments over the various time periods that have affected wild land and the plotting of general trends in these over time in terms of the metrics suggested above. Results from local case studies show that road building, railways, commercial forestry, moorland management (hill tracks, drainage and muirburn), hydro and wind energy

developments and associated access tracks and powerlines are the principal detractors of wild land quality, but each peak at different time periods.

16. **What is the role of Scottish government policy in driving this loss?** Historical policies can be summarised over the period from 1750s onwards, together with more detailed analysis and evaluation of the effects of Scottish government policy and its effects on drivers of wild land attrition. A written analysis is provided citing appropriate sources. Wild Land was not specifically addressed in national planning policy until 2014. That should have led to the development of policy and guidance at a local level through Local Development Plans and Supplementary Guidance. However, that has not happened. The evolution of wild land related policy since 2014 is assessed in respect of the Planning Authorities for the agreed study areas. However, it was also necessary to consider the fact that the largest forces for change, including wind farms over 50MW installed capacity, do not fall within the legal remit of the land use planning systems.

17. Has the identification of Wild Land Areas resulted in a slower rate of loss within these areas? Using the results from the mapping, rates of change can be compared using the selected WLA case studies. The length of time for this part of the study is limited to the seven years since the announcement of the 2014 WLAs and the incorporation of wild land principles in National Planning Framework 3 (NPF3) and Scottish Planning Policy and Guidance 2 (SPPG2).

18. If current trends continue, when will extensive areas of wild land cease to exist in Scotland? This is perhaps the most problematic question that the research addresses. The extrapolation of rates of change is highly speculative, given the caveats and difficulties of calculating rates of change associated with drivers of wild land loss and the context-specific nature of these; the influence of the changing policy landscape; and the resulting estimates of likely date of complete loss of wild land in Scotland or in the case studies in question n. Nonetheless, estimates are derived based on current trends and a range of plausible scenarios. The issue of the extent to which the continuation of current Scottish planning policy and guidance will contribute to the assessment of this aspect is also addressed.

19. **What policies are needed to ensure wild land continues to exist into the future?** Based on the above research, a range of policy mechanisms are suggested to ensure the continued existence of Wild Land Areas in Scotland for years to come. These suggestions include the consideration of the use of statutory designations as well as revisions to the planning policy framework at national and local level. Finally, consideration is given to suggestions for legislative change such as that used to strengthen the protection of NSAs in the 2019 Planning (Scotland) Act.

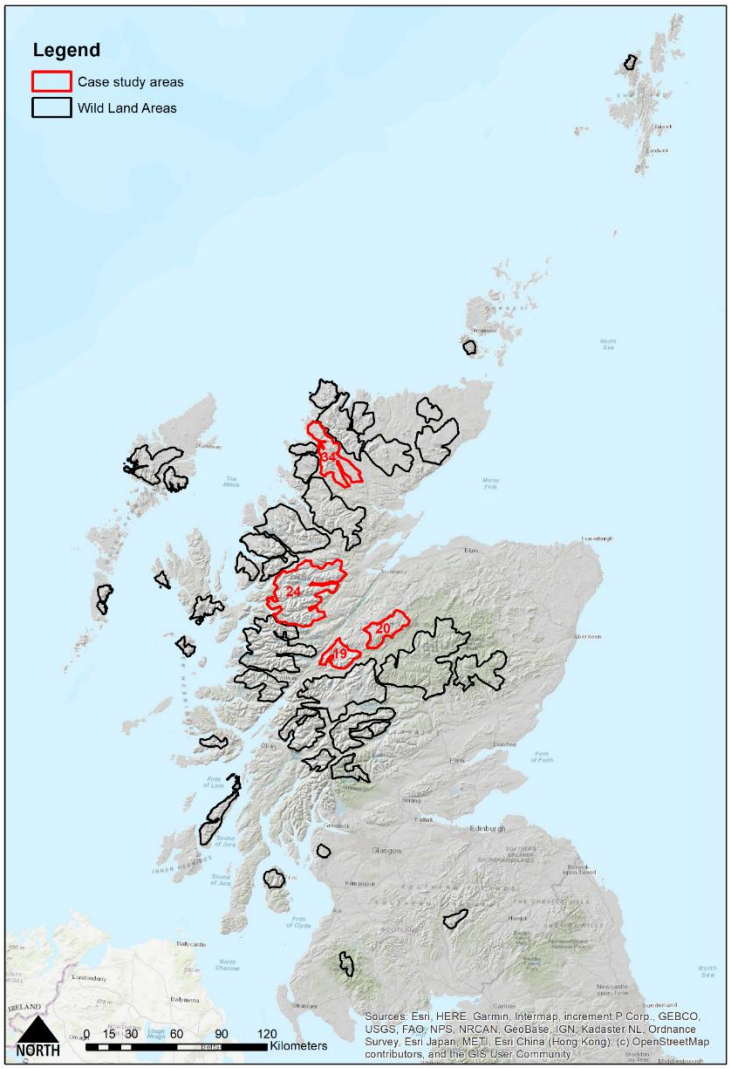


Figure 1.1 Case study Wild Land Areas

1.3 A review of wild land in Scotland

20. The concept of wild land in The Highlands of Scotland has been with us for many years. Works by popular authors such as Nan Shepherd[5] and Frank Fraser-Darling[6] describe many of the essential elements of wildness that we now believe comprises or makes up "wild land". The following paragraphs provide a roughly chronological review of the development of the wild land concept in Scotland, with a focus on development of spatial approaches to mapping wildness and wild areas, and the associated policy mechanisms from SNH and the Scottish Government.

21. Early academic studies of the idea of wild(er)ness in Scotland and associated mapping efforts really began with Bob Aitken's PhD thesis on "Wilderness areas in Scotland" that was completed in 1977[7]. A large-scale questionnaire survey was used to determine the physical and perceptual attributes of wildness associated with recreational use and the motivations underpinning this. The thesis presents maps (mostly hand drawn but with some early examples of computer aided cartography) of remoteness from public roads used to identify wild land areas. These are reproduced in Figure 1.2.

22. In another PhD thesis published 20 years later, Dominic Habron extended the ideas developed by Bob Aitken using a photographic questionnaire to understand how people respond to visual landscape stimuli affecting wildness, naturalness, and scenic beauty[8]. The results showed a remarkable variation in people's perceptions about wild landscapes depending on location and background. Data gained from the survey was used to extrapolate wildness values in maps. This work laid the ground for later work on wildness perception surveys carried out on behalf of SNH in 2007 and 2011.

[5] Nan Shepherd (1977) The Living Mountain. Written in the 1940s but not published until 1977.
[6] Frank Fraser-Darling (1969) Wilderness and Plenty. BBC Reith Lectures.
[7] Bob Aitken (1977) The wilderness areas in Scotland. Thesis presented for the award of PhD, University of Aberdeen, 1977.
[8] Habron, D., 1998. Visual perception of wild land in Scotland. Landscape and urban planning, 42(1), pp.45-56.

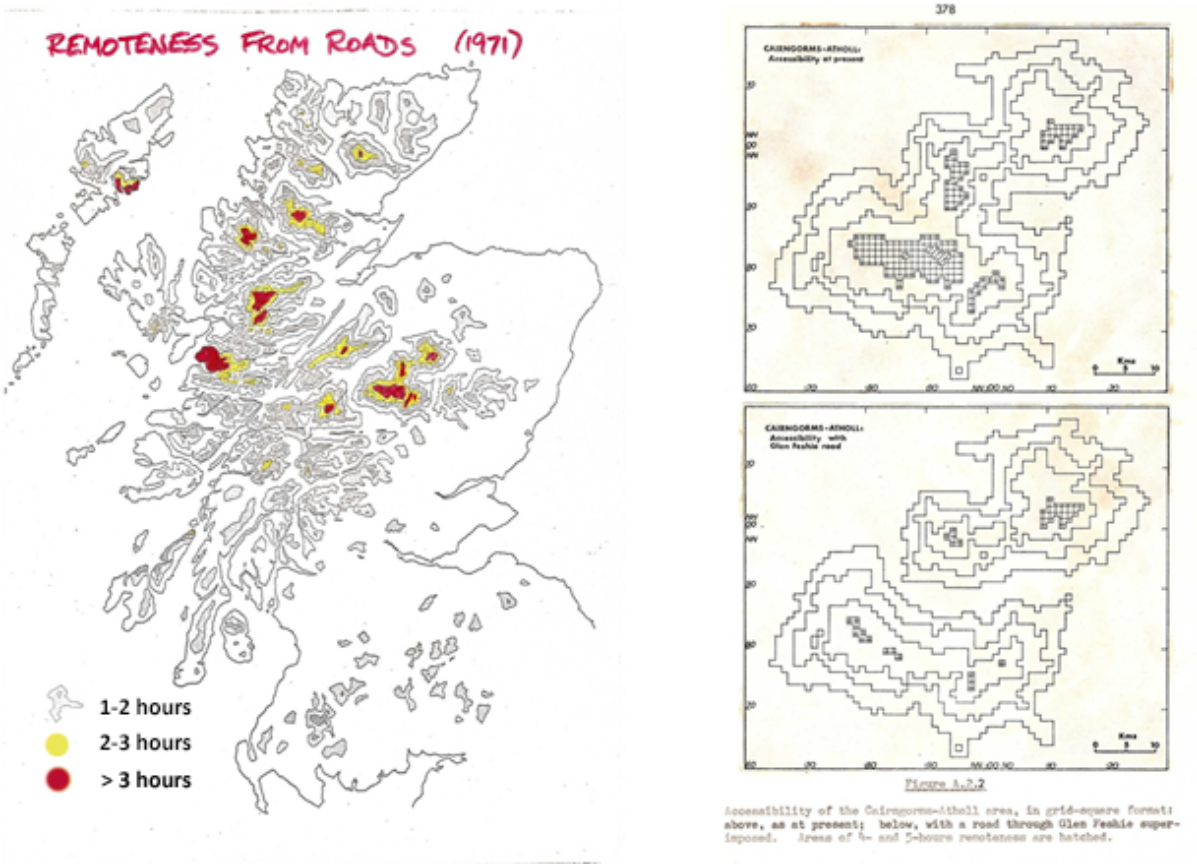


Figure 1.2 Mapping remoteness (After Aitken, 1977)

23. Arguably the first reference to wild land in Scottish government policy can be found in National Planning Policy Guidance (NPPG) 14 from 1998 that states: *"Some of Scotland's remoter mountain and coastal areas possess an elemental quality from which many people derive psychological and spiritual benefits. Such areas are very sensitive to any form of development or intrusive human activity and planning authorities should take great care to safeguard their wild character. This care should extend to the assessment of proposals for development outwith these areas which might adversely affect their wild character*."[9] NPPG 14 required planning authorities to include policies in their Structure and Local Plans for protecting and enhancing landscapes of wild character. For example, The Highland Council Renewable Energy Strategy (2006) assigned three policies to the protection of wild land from both direct and indirect effects of renewable developments. This stated that "*Development of new renewables projects should*

[9] The Scottish Office (1998) National planning policy guidelines NPPG14, Natural Heritage.)

safeguard the wildest areas of Highland from further direct development pressures, including any access tracks to adjacent areas. The indirect effects of renewable development, especially wind farms, located outwith areas with qualities of wildness, but visible from them, will be taken into account especially if viewing distances are relatively close. The preferred pattern of development is to encourage the clustering of renewable energy developments, so as to avoid the undue spread of technology into semi-wild areas of Highland."

24. The SNH Policy Statement on "Wildness in Scotland's Countryside" (2002)[10] provides support for the approach taken in National Planning Policy Guidance 14 (NPPG14) but making a distinction also between the concepts of wildness (the quality experienced by people) and wild land (those landscapes where the qualities of wildness are best expressed). Here SNH describe wild land as where *"the wild character of the landscape, its related recreational value and potential for nature are such that these areas should be safeguarded against inappropriate development or land-use change"*.

25. Writing at the same time, The National Trust for Scotland (NTS) provided their own policy statement on wild land describing it as *"relatively remote and inaccessible, not noticeably affected by contemporary human activity, and offering high-quality opportunities to escape from the pressures of everyday living and find physical and spiritual refreshment… The primary purpose will be to identify, protect and enhance the 'core wild land' areas of Scotland"*[11]. The NTS policy statement makes further reference to the Unna Principles that dictate certain provisions for wild land that must be followed by the NTS properties in receipt of the endowment provided by Percy Unna, and laid out in a letter that asks the Trust *"to undertake that the land be maintained in its primitive condition for all time with unrestricted access to the public*" (see Appendix 1).

26. The SNH 2002 Policy Statement is notable for the definition of wild land which provides some basis for the geographical analysis of wild land in Scotland through characterising wild land by specific attributes; namely a lack of human habitation and influence, remoteness and inaccessibility, size, ruggedness, challenge and

[10] SNH (2002) Wildness in Scotland's Countryside. Edinburgh, Scottish Natural Heritage.
[11] NTS (2002) Wild land policy. January 2002.

opportunity for physical recreation. These characteristics of wildness can be mapped, either directly or using proxy indicators and SNH identify four basic attributes of wildness: naturalness, human impact, ruggedness and remoteness. These are shown in Appendix 2 together with associated criteria.

27. Although SNH did not go as far as to map these attributes they did provide in the hardcopy report some basic models of remoteness based on straight line distance from nearest public roads and hill tracks (see Figure 1.3). They also provided a map indicating possible Search Areas for Wild Land (SAWL) highlighting the main areas where wild land qualities were most likely to be found. This map was drawn largely from personal knowledge of the policy statement authors and, while was never intended as a definitive map of wild land areas, it did serve as guide until the final WLAs map was published alongside NPF3 and SPPG in June 2014. The SAWL are shown in Figure 1.4.

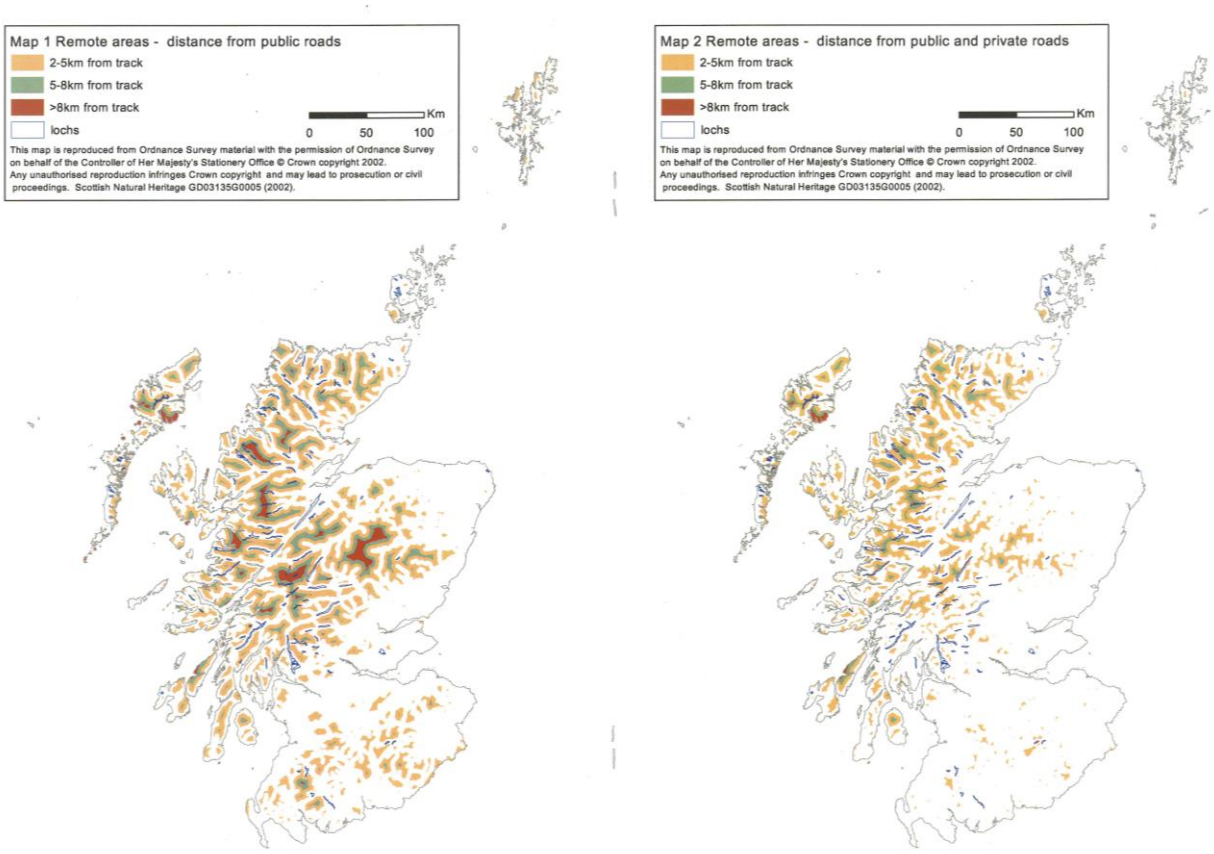


Figure 1.3 Remote areas (After SNH, 2002)

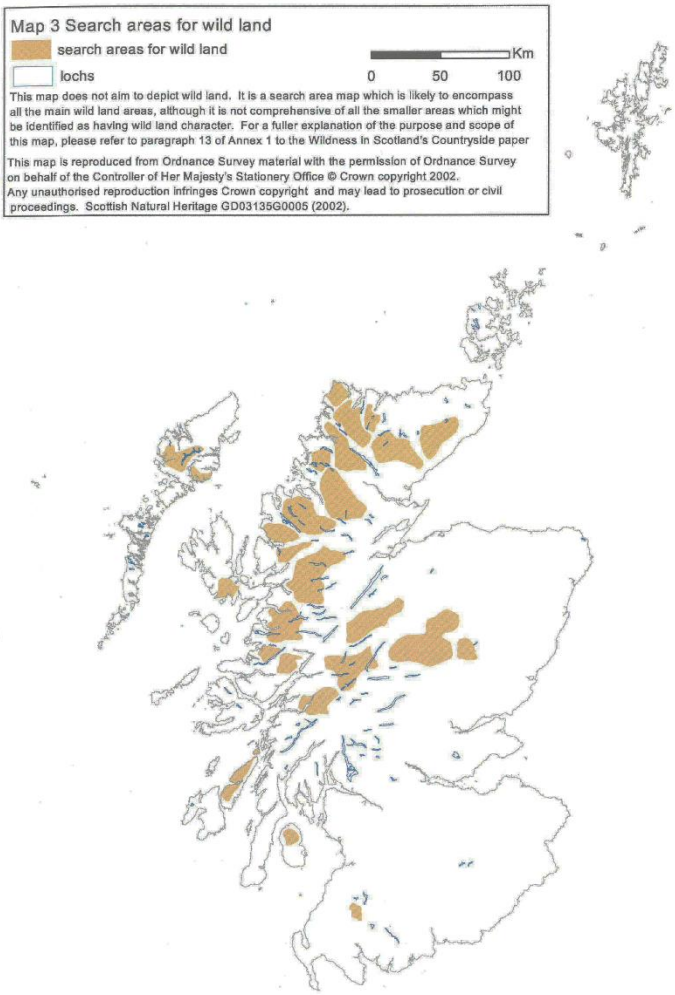


Figure 1.4 Search Areas for Wild Land (After SNH, 2002)

28. After the SNH 2002 Policy Statement, SNH commissioned a report to look at the trends in the extent of wild land in Scotland[12]. This work used GIS mapping to describe the attrition of wild land areas Scotland to promote more informed debate and assist policy development. Digital map databases showing roads, bulldozed trails, plantation forest and hydropower schemes were backdated using historic maps, allowing these developments to be quantified for the Affric-Kintail-Knoydart area from the late 19th century, during the 1950s and at the present time.

[12] Carver, S. and Wrightham, M. (2003) Assessment of Historic Trends in the Extent of Wild Land in Scotland: a pilot study. SNH Commissioned Report No.12.

Accessibility modelling and viewshed analysis[13] are used to assess the influence of these developments on remoteness, and the extent of land free of such visible features, at the three time periods given above. The work demonstrated that land considered remote from roads or bulldozed trails has decreased over the last 100 years while land without visible trails, plantations and hydro schemes has also decreased by between 30 and 39 percent over this period. This provides quantitative support to the widespread perception that the Scottish wild land resource has experienced progressive incursion by hydro schemes, afforestation and road/track construction over the last 100 years.

29. In preparation for more detailed feasibility studies and mapping of wildness in the two national parks, SNH commissioned a perception survey using a representative sample of just over 1300 Scottish residents using face-to-face interview techniques[14]. Of this sample, roughly 300 people were residents of the Cairngorms National Park (CNP), while the other 1000 people were interviewed across the rest of Scotland. The interviews covered topics investigating participation in outdoor activities, perceptions of wild places, knowledge of wild areas in Scotland and wild areas in the CNP, and implications for and threats to wild places. In general, the two groups showed similar responses, with a strong support for the conservation of wild land in Scotland. Key findings included:

    - The perception that wild places are an important part of Scotland‘s culture and heritage and important for tourism;
    - Around one in two residents thought that wild places were under threat from development, with around 3 out of five people thinking that action is required to preserve wild areas through, for example, more stringent planning controls;
    - Most people have a well-established notion of what constitutes wildness with over 75% of respondents mentioning features which can be attributed to naturalness of land cover, although this is not limited to one particular

[13] A computational algorithm that delineates a “viewshed” or the area that is visible in the landscape from a given location. The analysis uses a digital terrain model showing the elevation value of each location in the model to determine visibility to or from a particular location.
[14] Market Research Partners, Edinburgh. (2008). Public perceptions of wild places and landscapes in Scotland. Commissioned report no. 291. Scottish Natural Heritage.

landscape type with woodland, forest, mountains, hills, lochs and moorland all featuring highly as wild places;

- Key threats and detractors mentioned include modern human artefacts such as buildings, masts and turbines, with fewer people mentioning plantation forestry, old buildings and footpaths as being significant;
- A wide selection of areas are perceived as being wild by respondents, with many people referring to the Highlands, the Western Isles and Northern Isles; and
- Most people perceived the CNP as wild, with emphasis on mountain tops and moorland as the wildest areas of the park.

30. In 2008 and 2011 wildness studies were carried out by the Wildland Research Institute at the University of Leeds, first in the Cairngorms National Park[15] and then again in the Cairngorms (extending the boundary and enlarging the park) and in the Loch Lomonds and The Trossachs National Park[16]. A GIS-based methodology was developed to map wildness attributes in both parks. This was based on wild land quality mapping utilising GIS-based multi-criteria evaluation (MCE) and fuzzy mapping methods. Digital map datasets based on the SNH (2002) Policy Statement "Wildness in Scotland's Countryside" were used to develop map datasets describing the four principal attributes that contribute to wildness; namely perceived naturalness of land cover, absence of modern artefacts, rugged and physically challenging terrain, and remoteness. The attribute maps were combined into wildness maps for both parks using MCE/fuzzy mapping methods, so allowing the relative priorities derived from the perception study to be reflected in the wildness map without the need for deterministic criteria or sharp boundaries defining that which is considered wild and that which is not. Wildness maps for both national parks are shown in Figure 1.5.

[15] Carver. S et al. (2008) Wildness Study in the Cairngorms National Park. Report by Wildland Research Institute, University of Leeds, commissioned by the Cairngorms National Park Authority and SNH.
[16] Carver. S et al. (2008) Wildness Study in the Loch Lomond and The Trossachs National Park. Report by Wildland Research Institute, University of Leeds, commissioned by the Loch Lomond and The Trossachs National Park Authority and SNH.

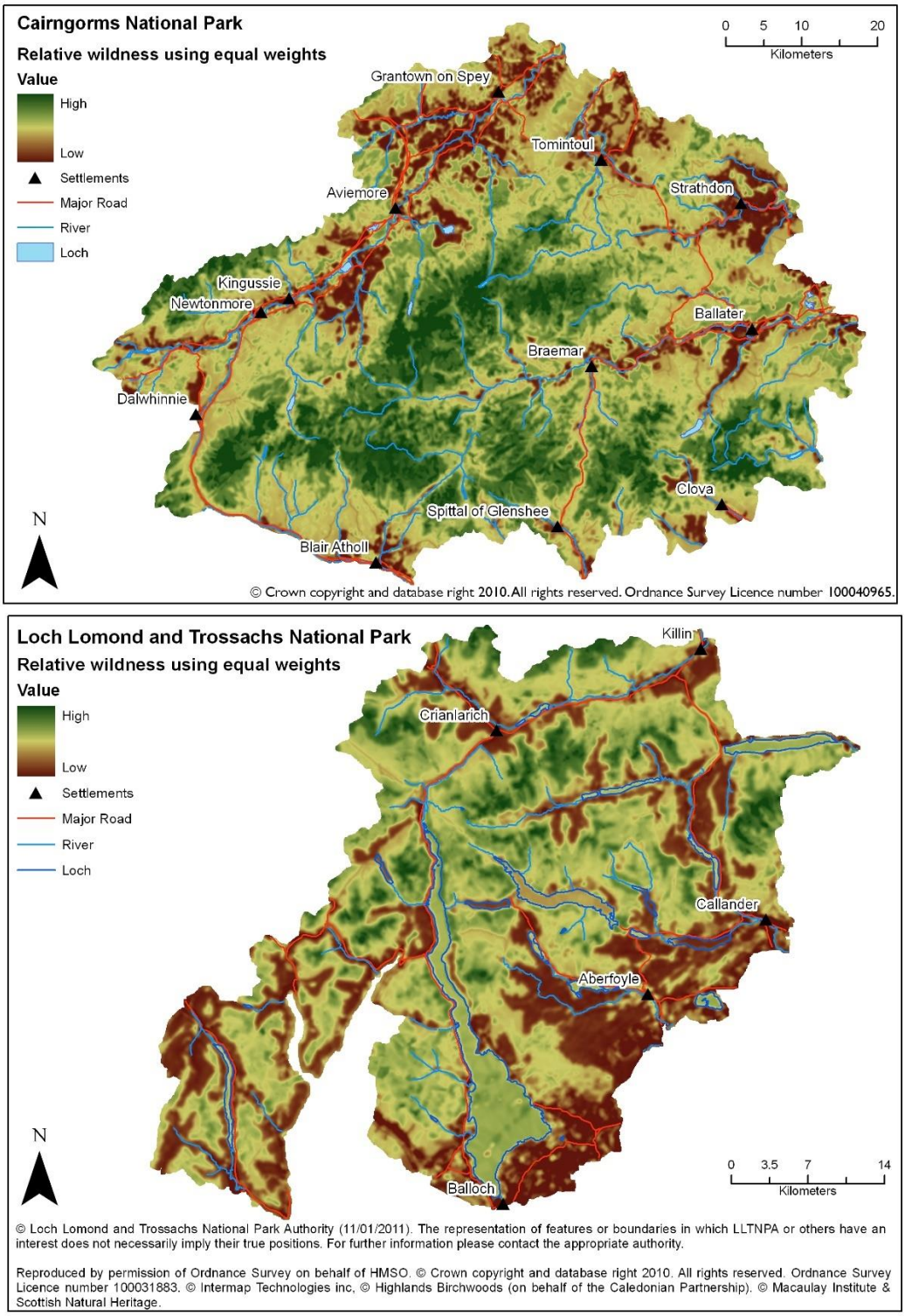


Figure 1.5 Wildness in Scotland's National Parks (After Carver et al., 2012)

31. The 2008 perception survey, while producing interesting results confirming the importance of wild land in Scotland (as per above), did not produce detailed

enough data from which robust and spatially explicit weights could be derived for application in the 2008 and 2011 National Park wildness studies. A further public perception study was conducted in 2011-12 to enable exploration of the effects of different weighting schemes applied to the component wildness attributes in the GIS models[17]. A sample of over 1800 people (1006 from a representative sample of the Scottish population and 210 from National Park residents and 656 from members of relevant mountaineering and conservation organisations) participated in an online and face-to-face photographic questionnaire. A 'Best/Worst' experiment was used to enable the respondents to rank the wildness impacts of a set of 25 individual attributes. Mathematical analysis of this set of responses suggested that attributes such as the presence of native wildlife, noticeable features in the landscape (such as cliff faces and boulder fields) and perceived naturalness of vegetation all achieve high 'wildness' scores, while attributes such as the presence of built-up areas, energy infrastructure (e.g. wind turbines, pylons, dams etc) and recreational infrastructure (e.g. 4-wheel drive tracks, hiking paths, ski lifts and field sports) all have a strong negative impact on perceived wildness. These data were used to derive suitable weights for the 2011 wildness studies in the two national parks. This work is written up in a published paper by Carver et al. (2012)[18].

32. The importance of wild areas is increasingly appreciated as noted by the Report of the European Parliament on Wilderness in Europe, adopted by a margin of 538 votes to 19 in February 2009. This calls for improved protection for wilderness areas through appropriate measures including mapping, research and awareness raising, together with provision of adequate funding to achieve this. A conference on Wilderness and Large Natural Habitat Areas took place later the same year hosted by the Czech European Union Presidency and the European Commission. This brought together some 250 participants from some 40 countries, including officials of government ministries, nature agencies, conservation NGOs, academics and interested parties from landholders, agriculture, forestry, business and other sectors. The objectives of the conference were to: (a) raise the profile of wilderness

[17] MVA Consultancy (2012) Public perception survey of wildness in Scotland. Report for LLTNPA and CNPA & SNH in association with Research Now.

[18] Carver, S., Comber, A., McMorran, R. and Nutter, S., 2012. A GIS model for mapping spatial patterns and distribution of wild land in Scotland. Landscape and urban planning, 104(3-4), pp.395-409.

and wild areas in Europe; (b) recommend an agenda for protection and restoration of such areas, and; (c) build a partnership between sectors based on consensus for implementing this strategy. Interestingly, Scotland was not slow to capitalise on this opportunity and undertook to commission a report on "The Status and Conservation of Wild Land in Europe" with the aim of providing a theoretical and practical underpinning for emerging Scottish government policy[19]. Later it was the first country in Europe to create an official mapping programme for wild land.

33. The approaches and methods used to map wildness in the two Scottish national parks was further developed and rolled out across the whole of Scotland by SNH between 2012 and 2014 resulting in the final 42 WLAs map published as part of the National Planning Framework 3 (NPF3) and Scottish Planning Policy 2 (SPP2). The Phase 1 wildness map and the resulting WLAs are shown in Figure 1.6 and WLA names and areas are listed in Table 1.1. This map supersedes SNH's earlier maps identifying Search Areas for Wild Land (SAWL) in 2002 and Core Areas of Wild Land (CAWL) in 2013. It is based on a rigorous, robust and repeatable methodology using the tried and tested methods in mapping wildness in the Cairngorm National Park and the Loch Lomond and the Trossachs National Park. The map has received cross-party and ministerial support and so can be regarded as the final version. A total of 42 wild land areas are identified covering just under 20% of the land area of Scotland.

34. The SPP2, although non-statutory, is *"a statement of Scottish Government policy on how nationally important land use planning matters should be addressed across the country... As a statement of Ministers' priorities, the content of the SPP2 is a material consideration that carries significant weight, though it is for the decision-maker to determine the appropriate weight in each case."* Although wild land is not a statutory designation, Paragraph 200 of the SPP2 states: *"Wild land character is displayed in some of Scotland's remoter upland, mountain and coastal areas, which are very sensitive to any form of intrusive human activity and have little or no capacity to accept new development. Plans should identify and safeguard the character of areas of wild land as identified on the 2014 SNH map of wild land*

[19] Fisher, M., Carver, S. Kun, Z., McMorran, R., Arrell, K. and Mitchell, G. (2010). Review of Status and Conservation of Wild Land in Europe. Project commissioned by the Scottish Government. http://www.self-willed-land.org.uk/rep_res/SCOTTISH_WILDLAND_WRI.pdf

areas." SPP2 goes on to say that: *"In areas of wild land... development may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation."*

35. The policy aspects of wild land areas are dealt with in detail in Section 4 of this report.

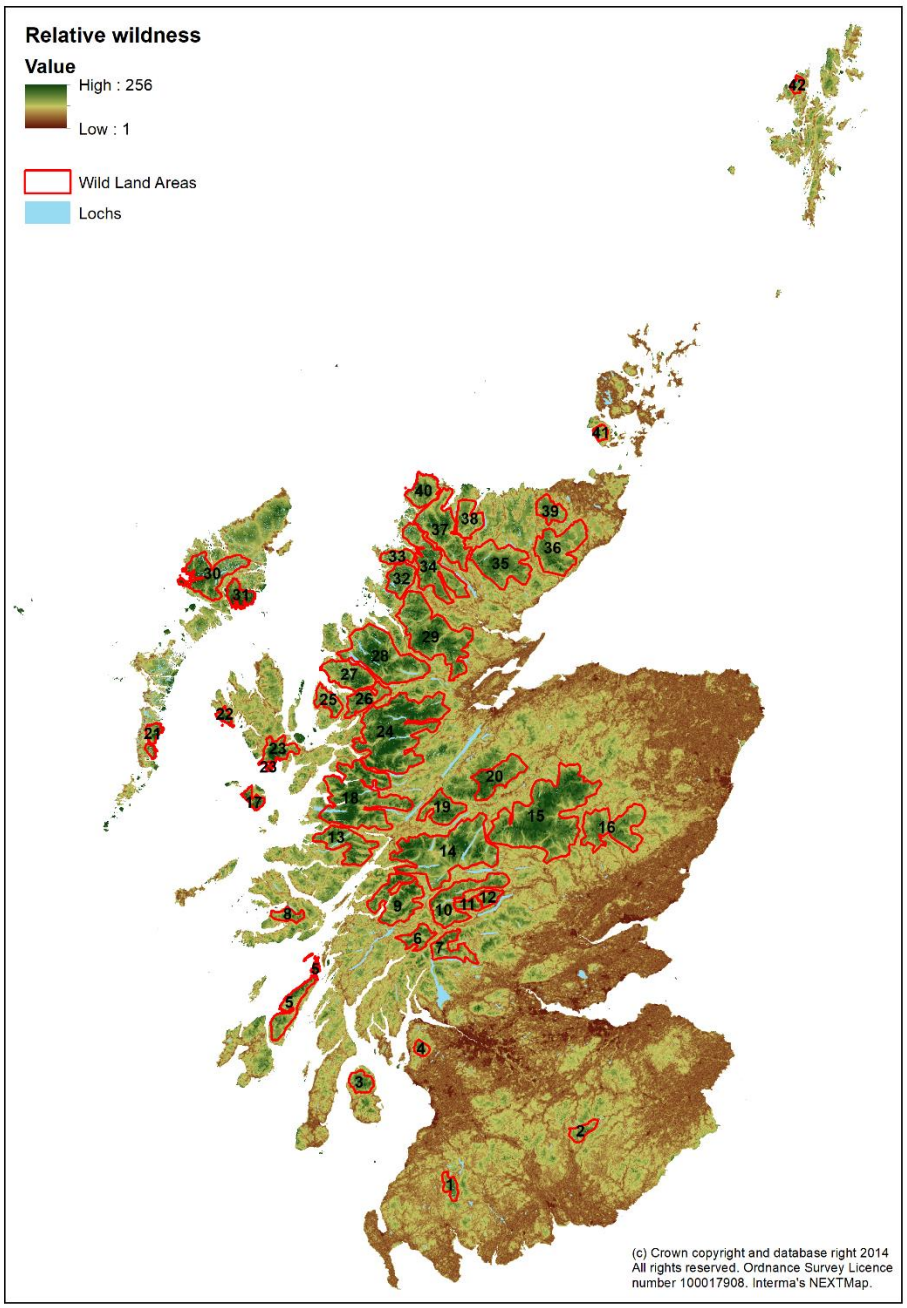


Figure 1.6 Phase 1 wildness and Wild Land Areas

Table 1.1 Wild Land Areas

Number	Name	Area (hectares)
1	Merrick	8,176
2	Talla-Hart fell	9,335
3	North Arran	11,751
4	Waterhead Moor Muirshiel	5,016
5	Jura, Scarba, Lunga and Garvellachs	27,862
6	Ben Lui	14,497
7	Ben More - Ben Ledi	21,213
8	Ben More Mull	8,720
9	Loch Etive mountains	50,674
10	Breadalbane - Schiehallion	44,840
11	Lyon - Lochay	7,297
12	Ben Lawers	8,143
13	Moidart - Ardgour	37,355
14	Rannoch - Nevis - Mamores - Alder	118,042
15	Cairngorms	157,225
16	Lochnagar - Mount Keen	53,583
17	Rum	6,957
18	Kinlochhourn - Knoydart - Morar	106,505
19	Braeroy - Glenshirra - Creag Meagaidh	26,460
20	Monadhliath	33,978
21	South Uist hills	10,005
22	Duirinish	4,469
23	Cuillin	18,324
24	Central Highlands	132,703
25	Applecross	13,662
26	Coulin and Ledgowan Forest	20,867
27	Flowerdale - Shieldaig - Torridon	31,782
28	Fisherfield Letterewe Fannichs	80,441
29	Rhiddoroch - Beinn Dearg - Ben Wyvis	90,467
30	Harris - Uig hills	45,270
31	Eishken	14,197
32	Inverpolly - Glencanisp	20,544
33	Quinag	10,446
34	Reay - Cassley	55,997
35	Ben Klibreck - Armine Forest	53,023
36	Causeymire - Knockfin Flows	51,404
37	Foinaven - Ben Hee	56,907
38	Ben Hope - Ben Loyal	22,085
39	East Halladale Flows	15,899
40	Cape Wrath	22,106
41	Hoy	4,990
42	Ronas Hill and North Roe	4,110

2. Mapping Historical Patterns

36. The mapping work reported on here follows the approach developed by Carver and Wrightham (2003) "Assessment of Historic Trends in the Extent of Wild Land in Scotland: a pilot study". This work was published in 2003 by SNH in Report No.12 and again in 2007 in the proceedings of the 8th World Wilderness Congress[20].

37. Digital datasets and historical maps are used with map overlay and visual comparison to produce a timeline of development in around the case study areas from 1750 to present. Accessibility and visual impact models are used to generate maps of the impacts on wild land over time (see Section 3).

2.1 Geographical indicators

38. Geographical indicators of wild land are described in detail in Annex 1 of the SNH 2002 Policy Statement "Wildness in Scotland's Countryside". These include perceived naturalness, lack of constructions or other artefacts, little evidence of contemporary land uses, rugged or otherwise challenging terrain, remoteness and inaccessibility and extent of area (see Appendix 2).

39. These are simplified to four wildness attributes in the mapping of wildness in the two national parks and across the whole of Scotland by SNH. These are: perceived naturalness of land cover, absence of modern human artefacts, remoteness from mechanised access, and ruggedness of the terrain. All four attributes are mapped using contemporary digital spatial datasets and advanced spatial modelling techniques. While it would make sense to repeat this mapping at relevant dates from the 1750s to present day, the data is not available. This necessitates a simplification of the geographical indicators and analysis carried out here. To this end, the geographical indicators used are restricted to remoteness from mechanised access, and visual impacts from human artefacts, mirroring those used by Carver and Wrightham in SNH Report No 12.

[20] Carver, S. and Wrightham, M., 2007. Shrinking wild lands: Assessing human intrusion in the Highlands of Scotland, 1870 to 2004, using Geographical Information Systems. In: Watson, Alan; Sproull, Janet; Dean, Liese, (eds). Science and stewardship to protect and sustain wilderness values: Eighth World Wilderness Congress symposium, September 30-October 6, 2005, Anchorage, AK. Proceedings RMRS-P-49. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Research Station. p. 357-366 (Vol. 49).

2.2 Data collection and site visits

40. The data used is collected from existing digital sources and scanned historical maps in the National Library of Scotland archives. Visual analysis was used to extract data from archived paper maps, the sources being listed in the flow chart shown in Figure 2.1. Data collection on plantation forest, renewable energy, buildings/settlement, and infrastructure (roads and railways) are described.

41. Site visits were undertaken to ground-truth certain aspects of the data and collect up to date photographs of the case study areas. Selected photographs are provided in a database of photographic evidence.

42. Data collection for these aspects are described in turn below.

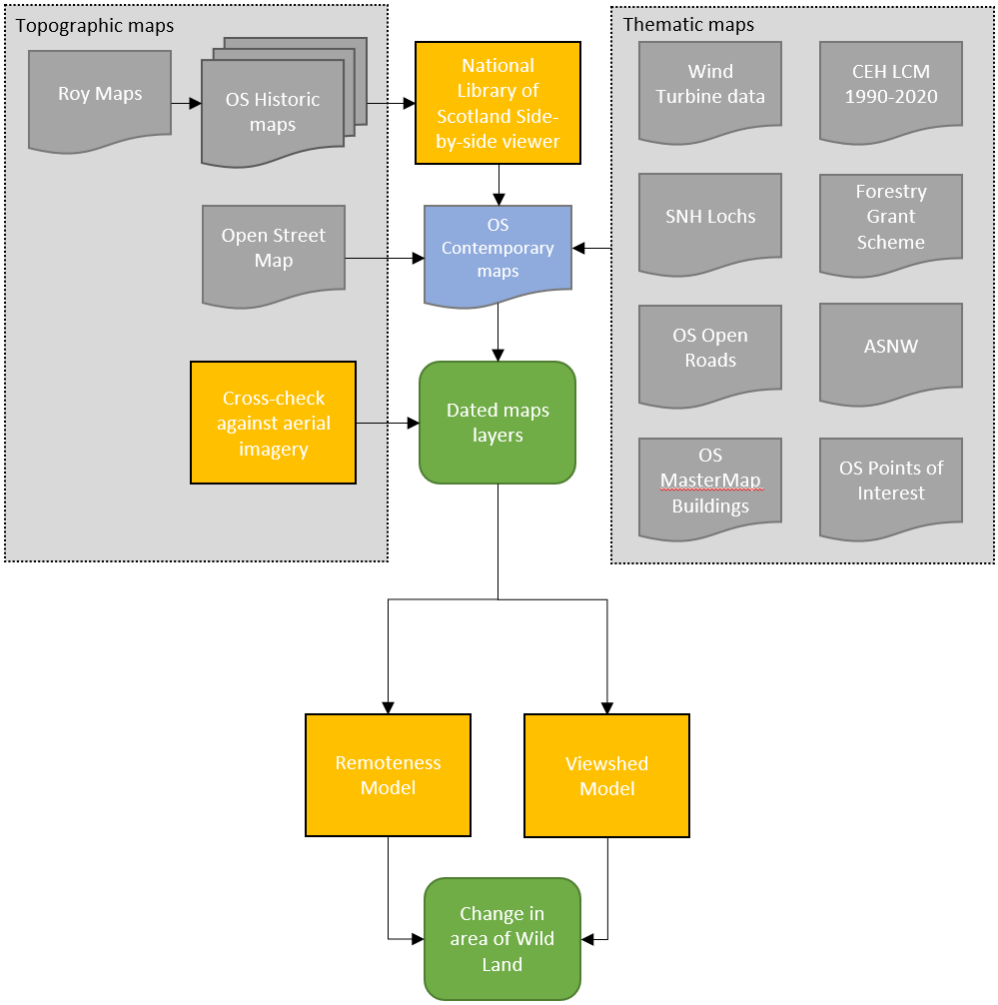


Figure 2.1 Flow chart

Plantation forest

43. Plantation forest[21] data was collected using two primary stages. First, pre 1988 data was collected using archived paper maps from the National Library of Scotland. Second, post 1988 data was collected using Land Cover Data from the UK Centre for Ecology & Hydrology (CEH)[22].

44. Comparative visual analysis was used to extract data from archived paper maps, the sources being listed in the flow chart shown in Figure2.1.

45. To prepare the use of the CEH Land Cover Data, coniferous forest was extracted from the national datasets and merged as a series of combined layers which enabled each individual date in the Land Cover layer to be labelled. The CEH Land Cover Maps are available from 1990 with intermediate mapping dates of 2000, 2007, 2015, 2017, 2018, 2019 and 2020. These are derived from classification of Landsat TM satellite imagery at 25m resolution. It can be reasonably assumed that most large areas of new coniferous woodland appearing in these data since 1990 are new plantation woodland. The resulting layers were combined to create a combined land cover dataset from 1988 to 2020. Using the Forestry Grant Scheme Native Woodlands data from Scottish Forestry[23], native woodland area as defined in the Ancient and Semi Natural Woodland (ASNW) data can be removed from the combined land cover layer to avoid over estimations of plantation forest areas.

46. Meanwhile, a national dataset for all industrial wind turbines (both onshore and offshore) exists showing turbine locations, their heights and date of installation. These have been derived from OS Points of Interest data, SNH datasets and information from the renewable energy industry and planning portals.

[21] Plantation forest is taken here to include any large block of trees, both native and non-native, planted for commercial timber supply. While it is often difficult to determine the reasons for planting, large blocks of conifers (including native Scots pine) are assumed to be for timber supply rather than habitat and wildlife.
[22] UK Centre for Ecology & Hydrology. 2022. Available at: https://www.ceh.ac.uk/
[23] Scottish Forestry. 2022. Available at: https://forestry.gov.scot/

Renewable energy

47. Wind turbine data used is based around the OS Points of Interest data[24] and supplementary information from SNH and additional information from planning applications developed by the University of Leeds[25].

48. Hydroelectric dam data was collected using aerial photography to determine the footprint of dams, and data made public by the operating companies. Hydro power reservoirs data was acquired from SNH.

Infrastructure and buildings

49. Road data was acquired from OpenStreetMap[26] and dated using archived paper maps and literary sources.

50. Building data was acquired from OpenStreetMap and OS MasterMap[27] and dated using archived paper maps and literary sources.

51. Power lines and pylons were acquired from National Grid and co-registered with OS map data[28].

Caveats and assumptions

52. While every effort has been taken to ensure completeness and coherence across dates and areas, it is accepted that there may be errors of omission and commission in the derived digital datasets. This is due to the age and quality of the historic data used and the manual process of cross-map comparisons required to incorporate these data and dates into the digital spatial datasets. Contemporary data from digital sources is taken "as seen" though this has been sense-checked against multiple sources including aerial imagery.

[24] Ordnance Survey Points of Interest https://www.ordnancesurvey.co.uk/business-government/products/points-of-interest
[25] Leeds, U., 2022. University of Leeds. [online] Leeds.ac.uk. Available at: <https://www.leeds.ac.uk/>
[26] OpenStreetMap. 2022 Available at: <https://www.openstreetmap.org/>
[27] Ordnancesurvey.co.uk. 2022. Ordnance Survey. Available at: <https://www.ordnancesurvey.co.uk/>
[28] Nationalgrid.com. 2022. Network route maps | National Grid ET. Available at: <https://www.nationalgrid.com/uk/electricity-transmission/network-and-infrastructure/network-route-maps>

53. One dataset, the CEH Land Cover Map 2000 dataset, was removed due to poor quality delineation of plantation forest area in the image classification process.

54. Working across such a large time scale, the meaning of certain terms inevitably changes. Plantation forest in 1747 is a distinctly different landscape to modern plantation in terms of both species' makeup and organisation. The primary species of Scotland's modern plantation forest is non-native species such as Sitka spruce, which was only introduced to Europe in the mid 1800's. Earlier plantations were varied, including both introduced trees such as larch and beech, and native Scots pine.

55. As a rule, the older the data source, the poorer the quality both in terms of content and spatial referencing. When using visual interpretation of the paper maps, any area which is currently plantation, and is shown as forest on the paper map was listed as plantation area. This is a necessary approximation, as data contained within, especially older, paper maps is limited.

56. Building data is not fully dated due to the prohibitive time expense required to manually determine the age of buildings.

57. Wind turbine data contains only completed sites. Sites in application, scoping and under construction were not included.

58. For illustration purposes, Figures 2.22.7 show a sequence of mapped features in WLA 34 at each of the key dates 1747, 1862, 1935, 1962, 2015 and 2020 as an example. The full set of maps is provided in Appendix 3.

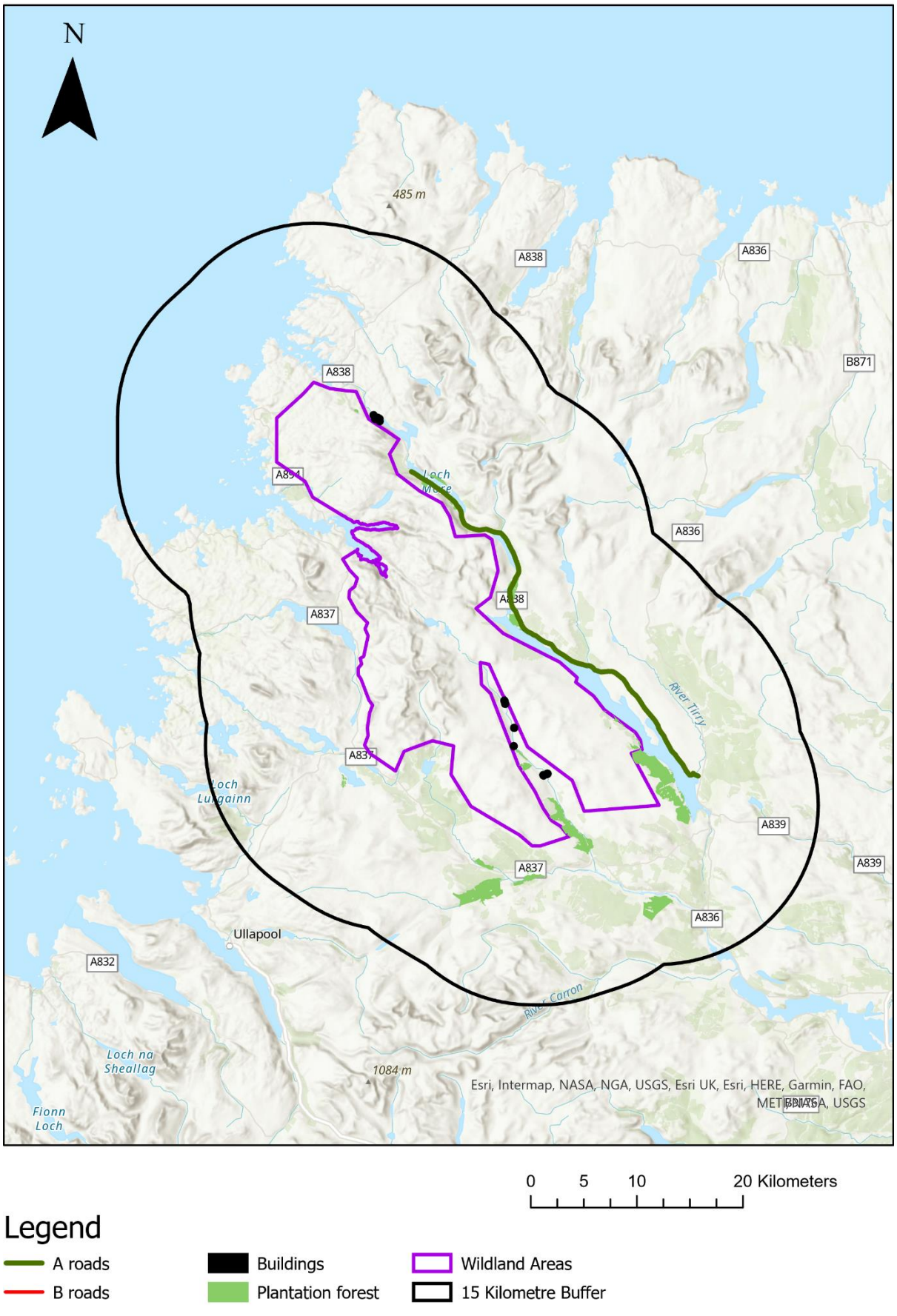


Figure 2.2 Mapped features across WLA34 (1747)

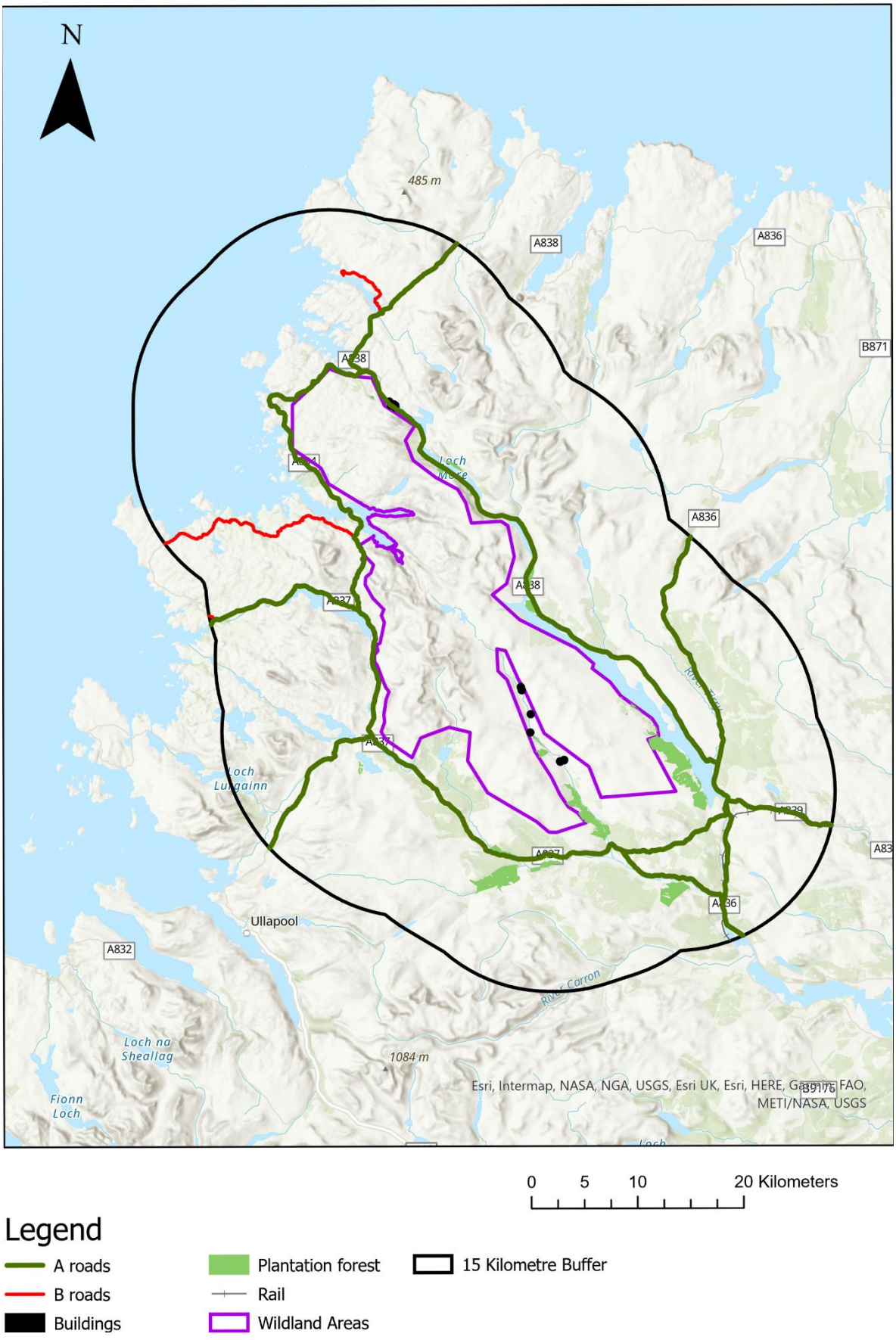


Figure 2.3 Mapped features across WLA34 (1862)

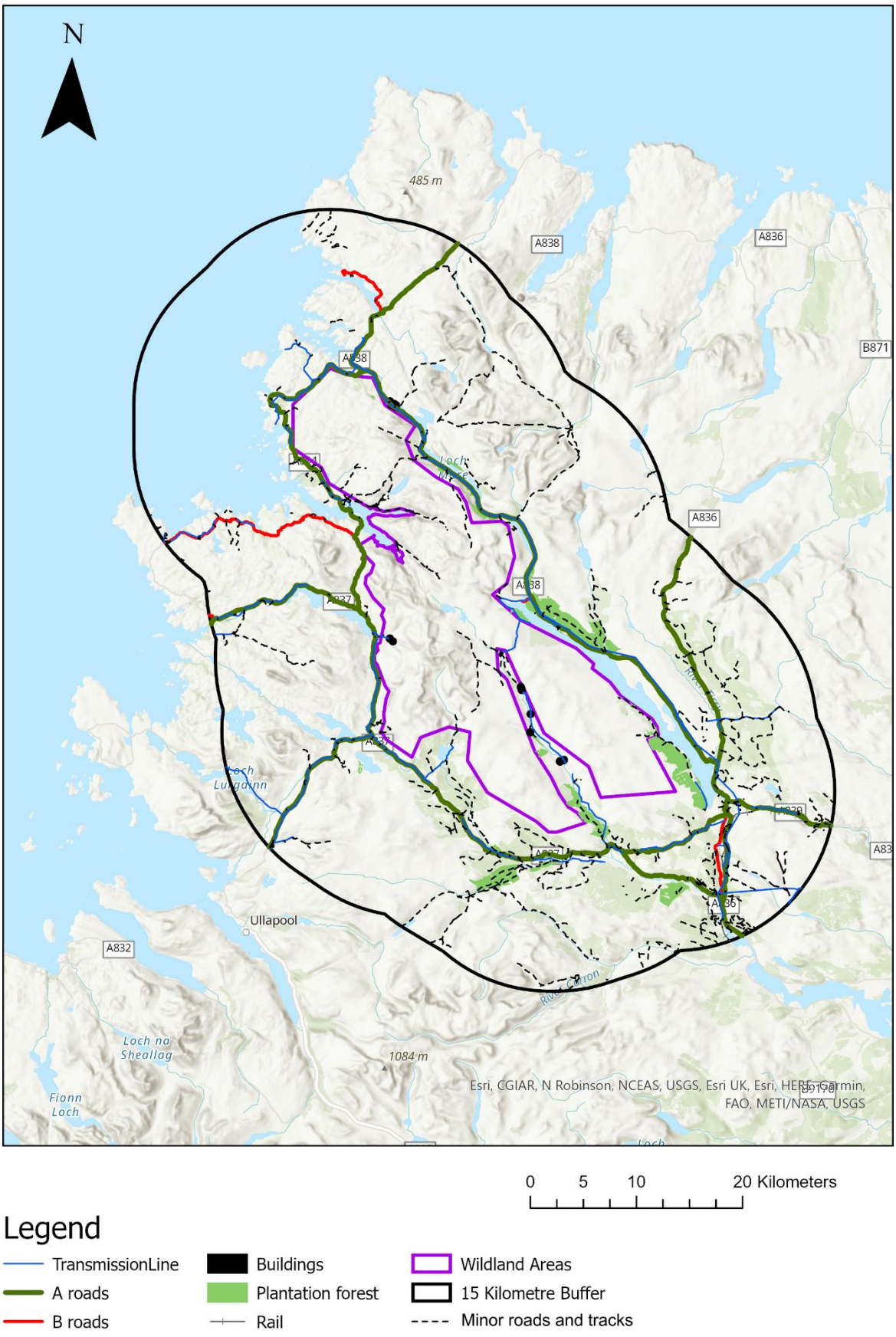


Figure 2.4 Mapped features across WLA34 (1935)

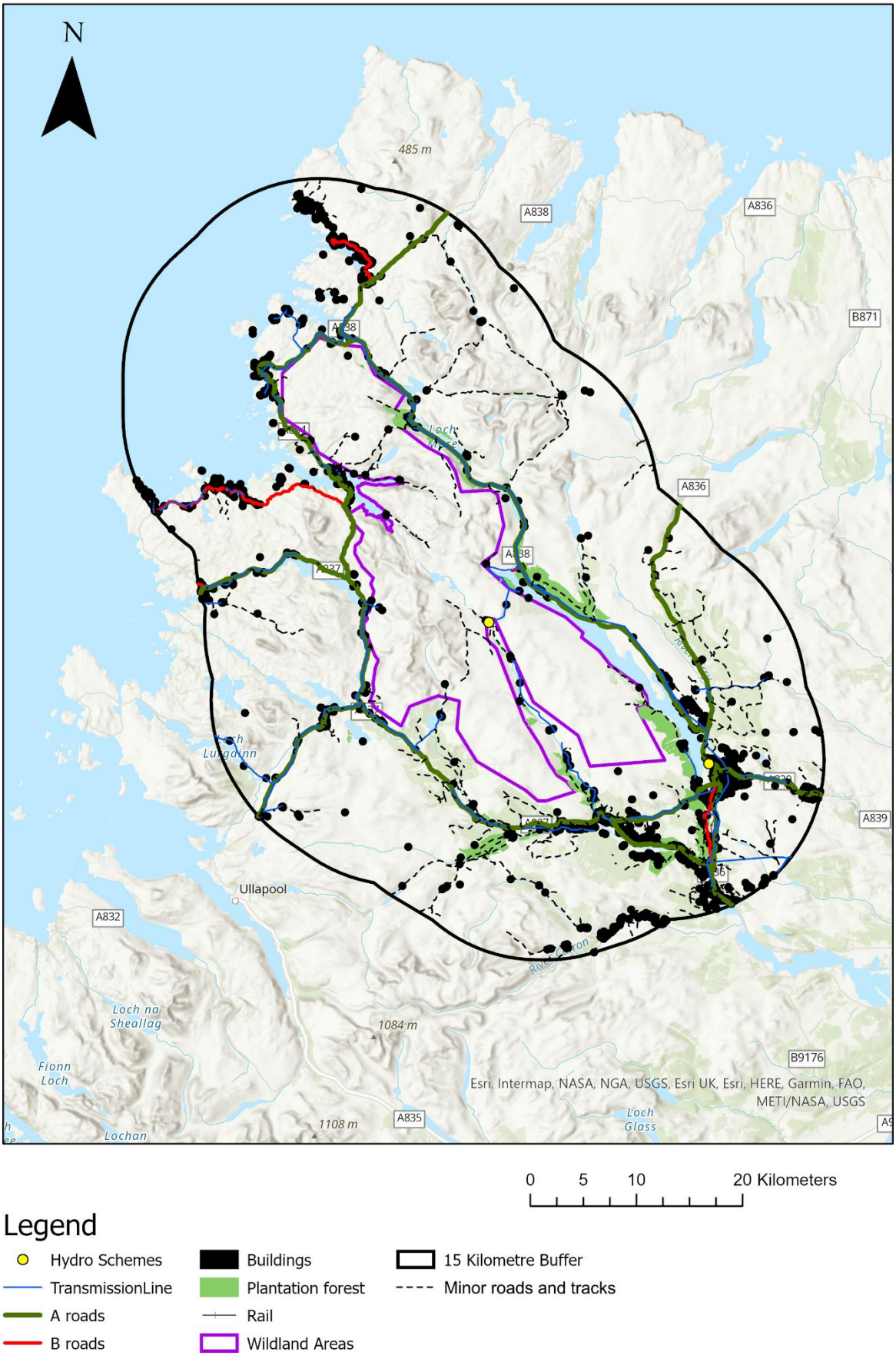


Figure 2.5 Mapped features across WLA34 (1962)

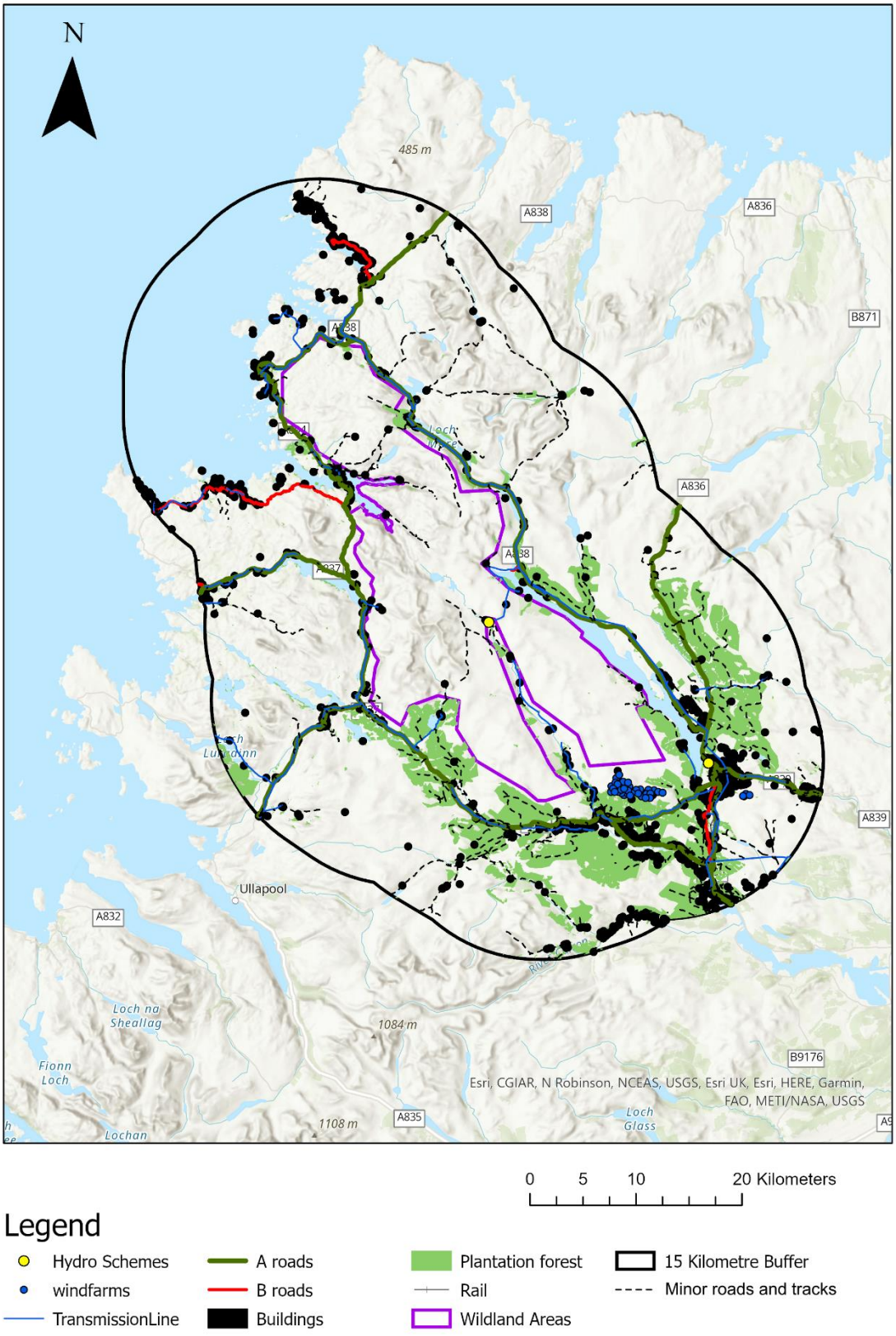


Figure 2.6 Mapped features across WLA34 (2015)

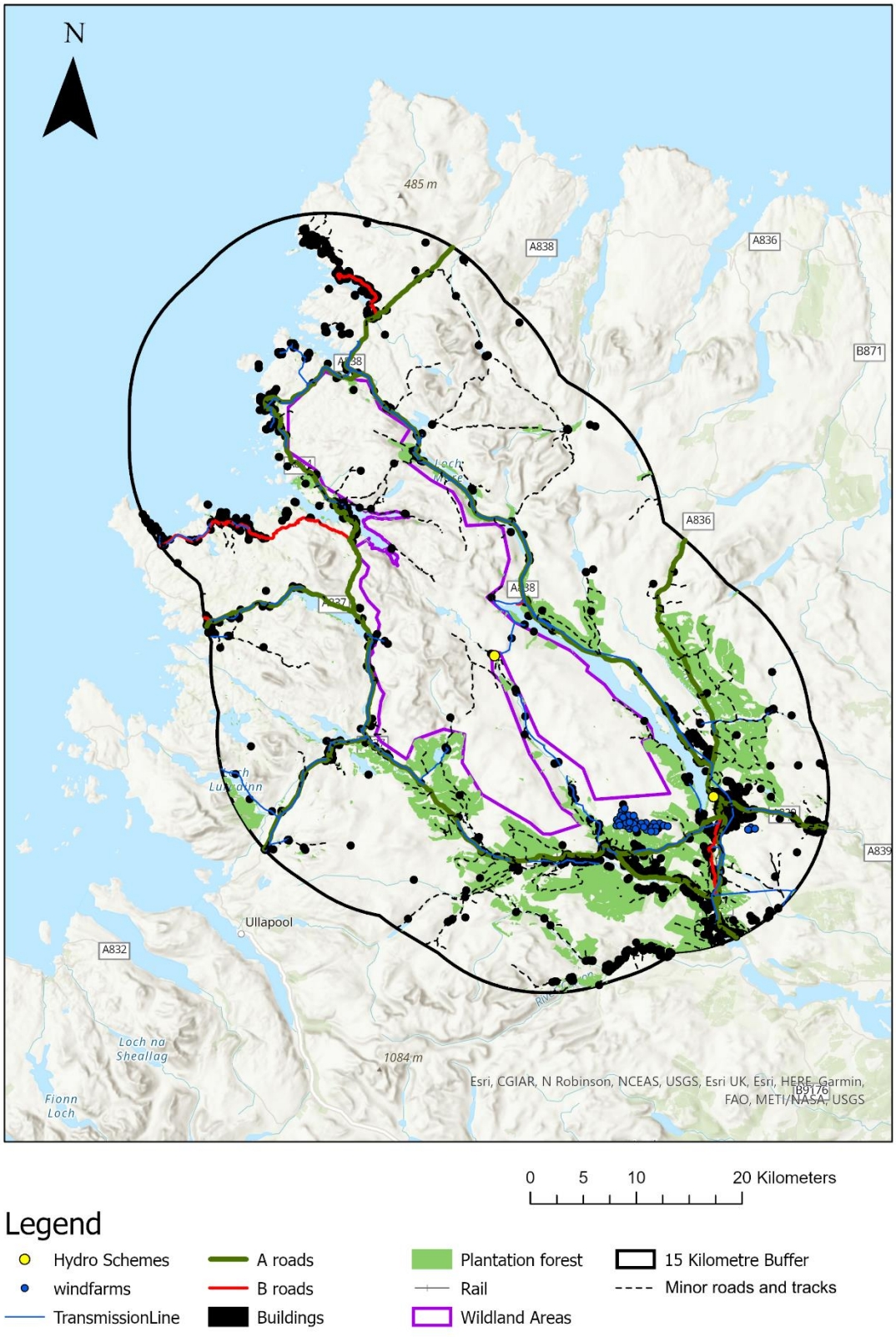


Figure 2.7 Mapped features across WLA34 (2020)

3. Assessment of Impacts on Wild Land

59. This report addresses seven key questions. These are as follows:

1) At what rate is wild land being lost?
2) Is the rate of loss slowing down or accelerating?
3) What are the main developments on the ground causing this loss?
4) What is the role of Scottish government policy in driving this loss?
5) Has the identification of Wild Land Areas resulting in a slower rate of loss within these areas?
6) If the current trends continue, when will extensive areas of wild land cease to exist in Scotland?
7) What policies are needed to ensure wild land continues to exist on to the future?

60. The assessment of the impacts on wild land presented here is structured around these questions, the data and methods used to assess the relevant impacts, and the calculations of rates of loss. These are illustrated in map, graph, and numerical form, supported by field-based photography as appropriate. Assessments are carried out for the four selected Wild Land Areas as listed in paragraph 11 and shown in Figure 1.1. WLA 24 was used as the case study in the SNH Report 12 in 2003 by Carver and Wrightham providing opportunities for comparison rates of attrition in the 15+ years since this report was published.

3.1 Rate of loss

61. The rate of loss can be calculated using maps of 'remoteness from mechanised access' and 'visual impact from human features in the landscape' following the methods used in SNH Report No.12 (2003)[29]. Data sources vary (as described in Section 2 of this report), with both change over time and in periodicity, depending on what is available.

62. The earliest dated and georeferenced maps available are the Roy Maps from the 1750s. While these provide a comprehensive picture of the geography of Scotland

[29] Carver, S. and Wrightham, M. (2003) Assessment of Historic Trends in the Extent of Wild Land in Scotland: a pilot study. SNH Commissioned Report No.12.

at the time, the information contained is of variable quality and quantity. More detail is seen around coastal areas and major glens, while the quality of surveying declines in the wilder interior areas. Some of the mapping in the remote Highlands seems to be largely conjecture and georeferencing is poor when compared to OS mapping. The Roy Maps are nonetheless a useful reference in showing the approximate extent of major wooded areas, and the location of settlements, farmed land and roads, though care needs to taken when using these to determine the exact location of such features in comparison to modern maps. The side-by-side map viewer provided by the National Library of Scotland is useful in making visual comparisons and checking for when and where human features appear in the landscape and on the historic maps (see Figure 3.1).

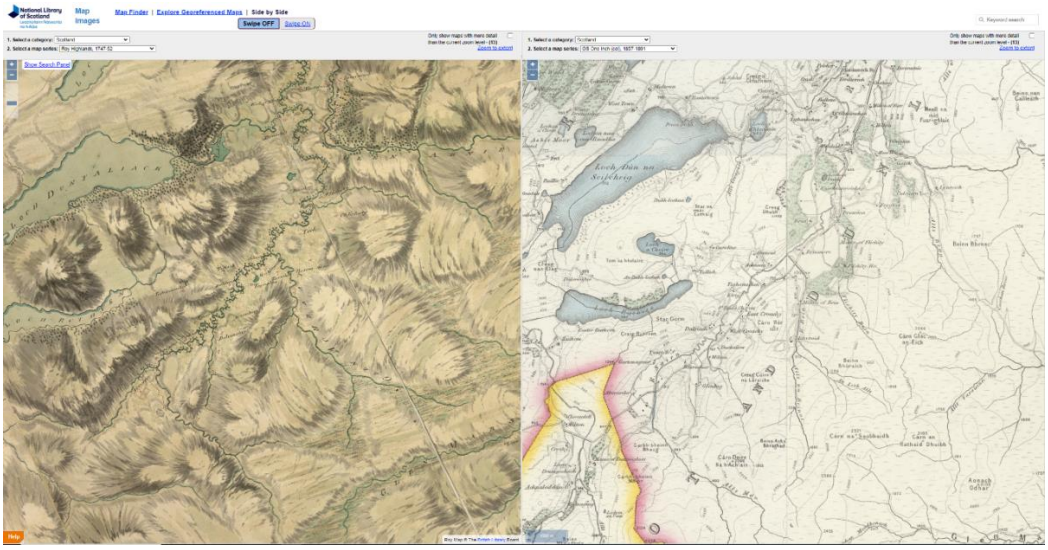


Figure 3.1 National Library of Scotland side-by-side map viewer

63. Subsequent map editions from the Ordnance Survey 1st Series (1850s) onwards are used to date mapped features and to transfer these dates to their corresponding location in the contemporary map data as a recorded date in the attribute table. These data were used to model remoteness and visual impact at discrete dates and intervals as shown in Tables 3.1. A total of 31 individual reference dates are included in the analysis.

64. Rates of loss are calculated as absolute area and percentages within the case study WLAs, and within a 15km buffer around these areas. The 15km buffer is applied to a) avoid edge effects within the currently defined WLA boundary from impacts

just outside, and b) model historical rates of loss in the wider landscape around the current WLAs. A 15km buffer is used as this follows the maximum search radius used in the 2014 wildness mapping by SNH for most human features.

65. Remoteness from mechanised access is defined as time taken to walk from the nearest road usable by the public (or railway) using a GIS-based implementation of Naismith's Rule[30] as described by Carver et al. (2012). A threshold of 2 hours is used to define remote for the purpose of calculating areas impacted by roads and rail. Figure 3.2 shows an example remoteness surface.

66. Visibility of human features in the landscape is used to identify areas without a view of modern human artefacts. These include plantation forestry, roads and railways, buildings, power lines and pylons, dams and reservoirs, and wind turbines. GIS-based viewshed tools are used with a 50m terrain model and spatial data on human artefacts to identify visibility within a 15km radius. Figure 3.3 shows an example visibility surface.

[30] Naismith, W. W. 1892. Untitled. Scottish Mountaineering Club Journal, 2: 135

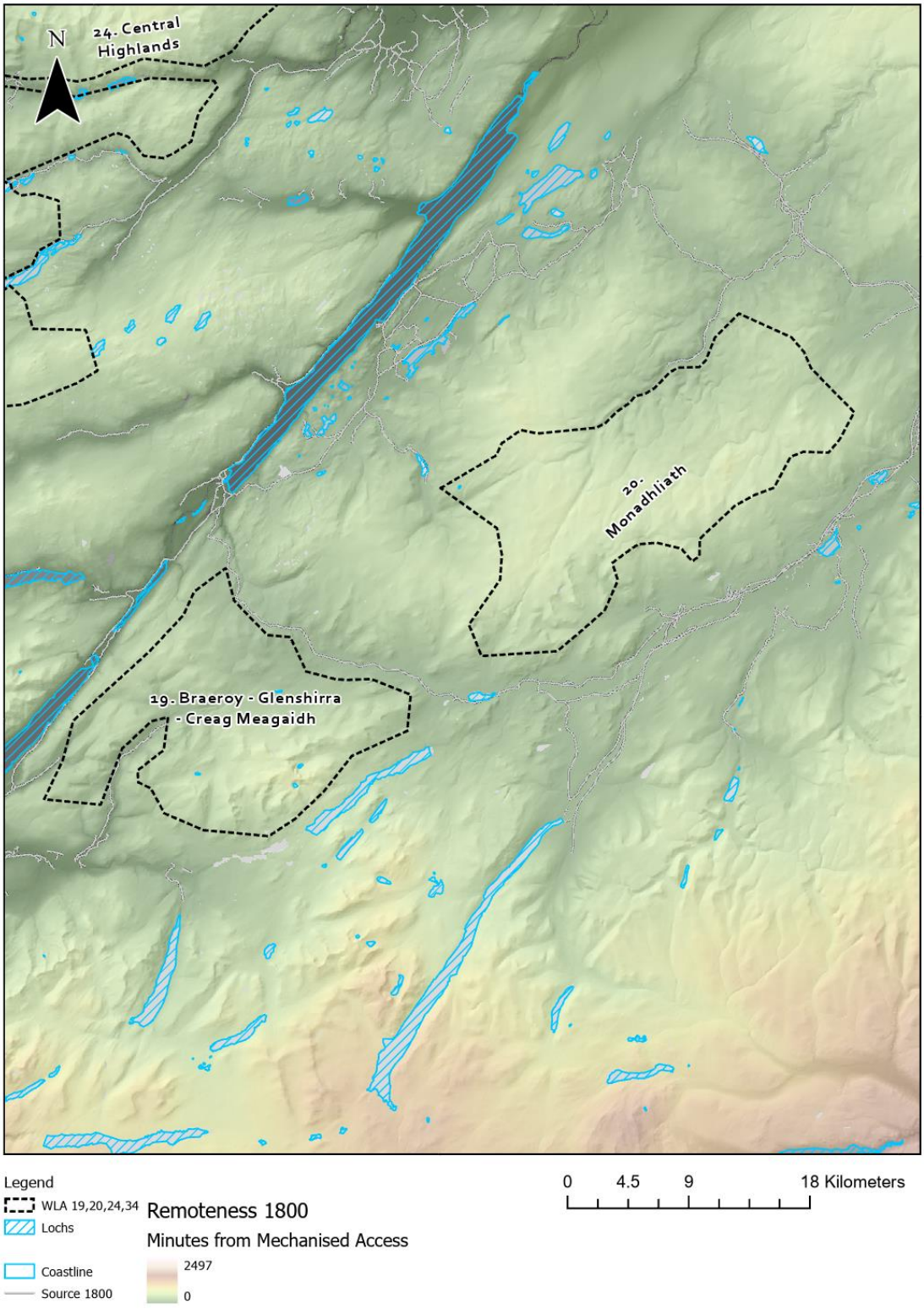


Figure 3.2 Remoteness from mechanised access using Naismith's Rule

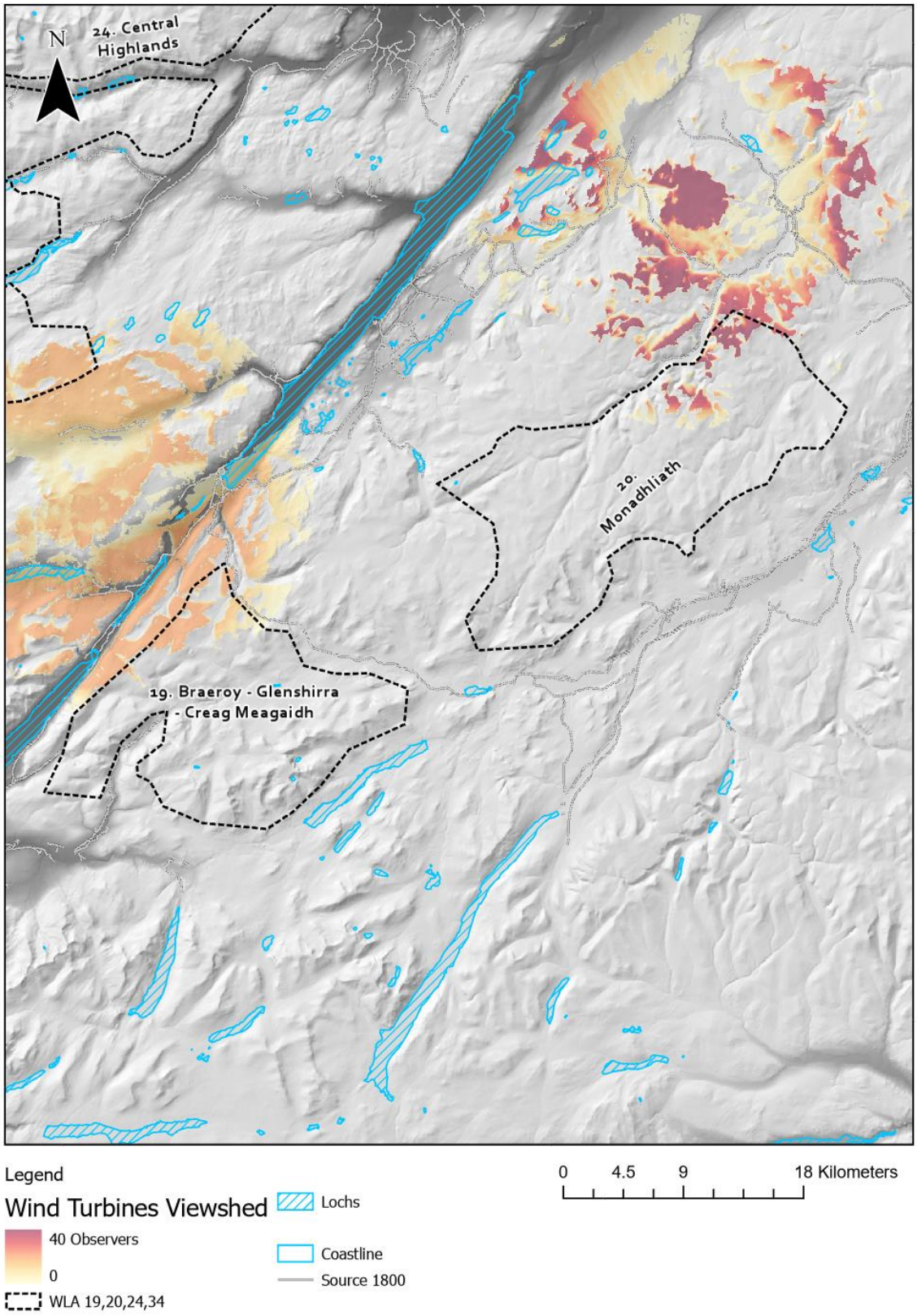


Figure 3.3 Visibility of wind turbines

67. There are 31 individual reference dates in the mapping from 1724 to present day and four case study WLAs, each mapped using the above methods and data. To visualise this many dates, maps are compiled using five key dates for comparison. These are 1885, 1935, 1962, 2005 and 2020. These dates are chosen to map the changes since they correspond most closely with key phases in features mapped. Each map shows the area of land from which human artefacts are visible together with walking time from the nearest road usable by the public. Figures 3.4-3.9 show example maps for WLA19 and 20. The full set of maps is included in Appendix 4. All the maps are included in an accompanying database. WLAs 19 and 20 are considered as a single area for the purposes of this study since they are adjacent and were a single unit in the 2013 CAWL until divided by the Stronelairg wind farm decision (see paragraph 74).

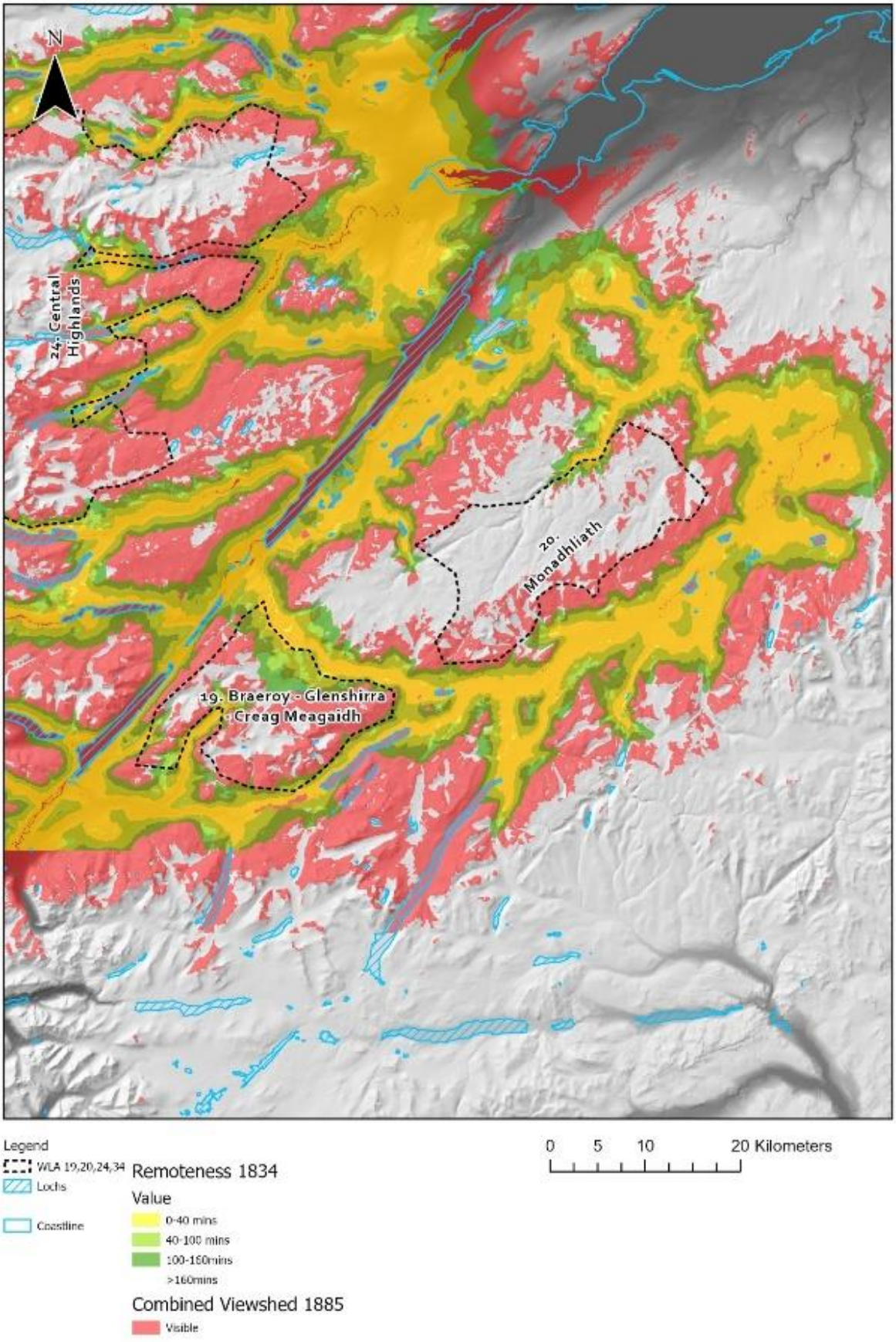


Figure 3.4 Combined viewsheds (1885) and remoteness (1834)

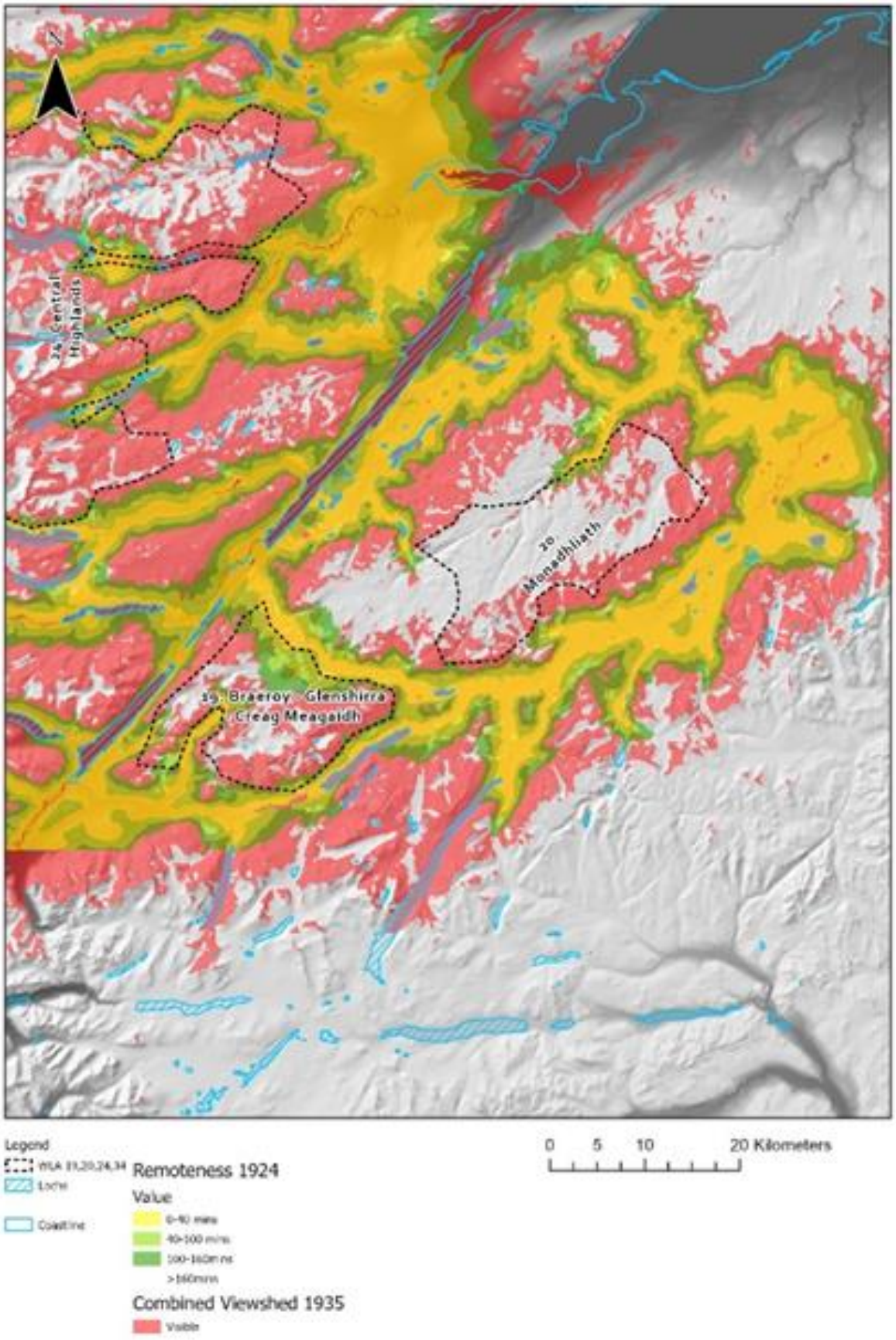


Figure 3.5 Combined viewsheds (1935) and remoteness (1924)

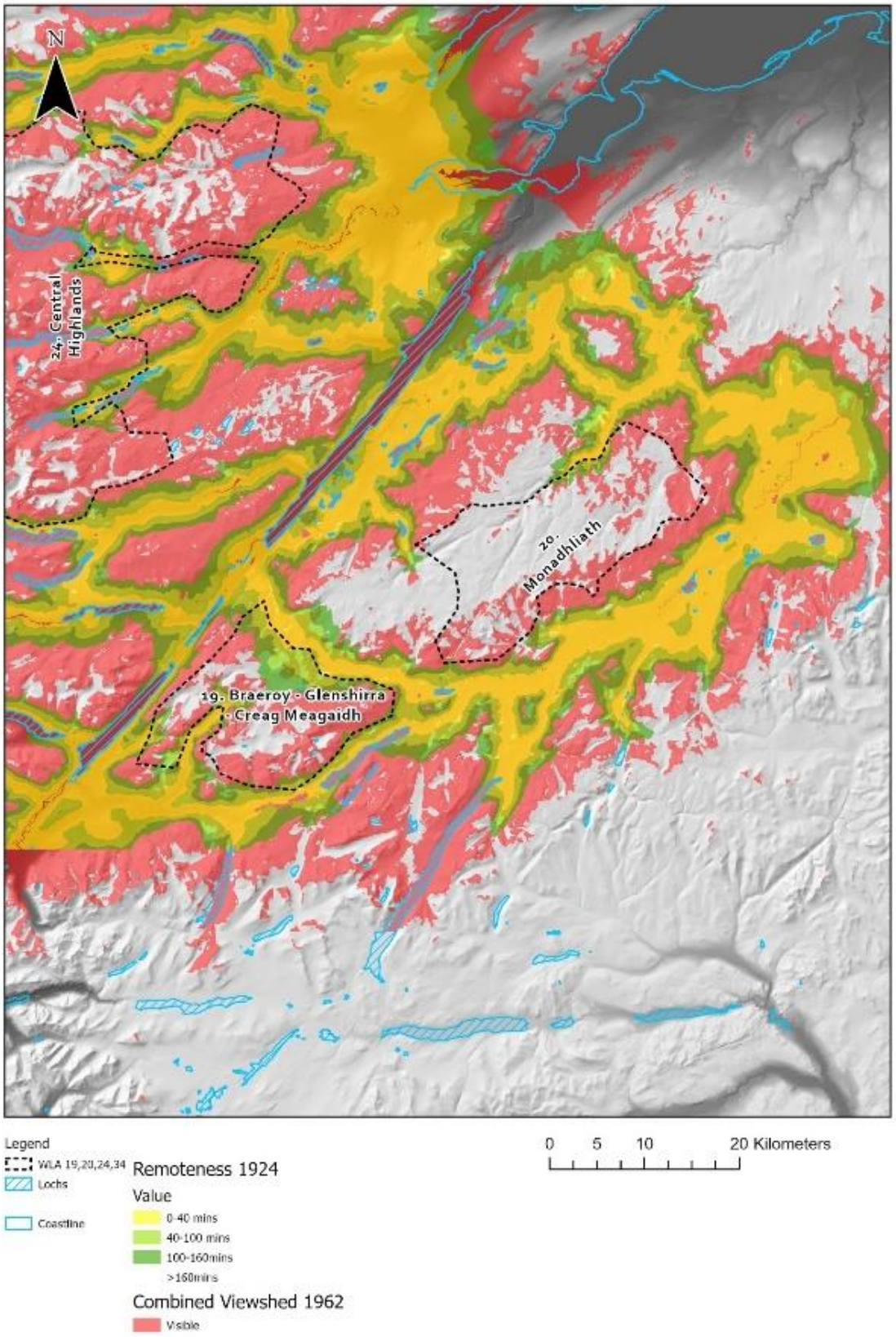


Figure 3.6 Combined viewsheds (1962) and remoteness (1924)

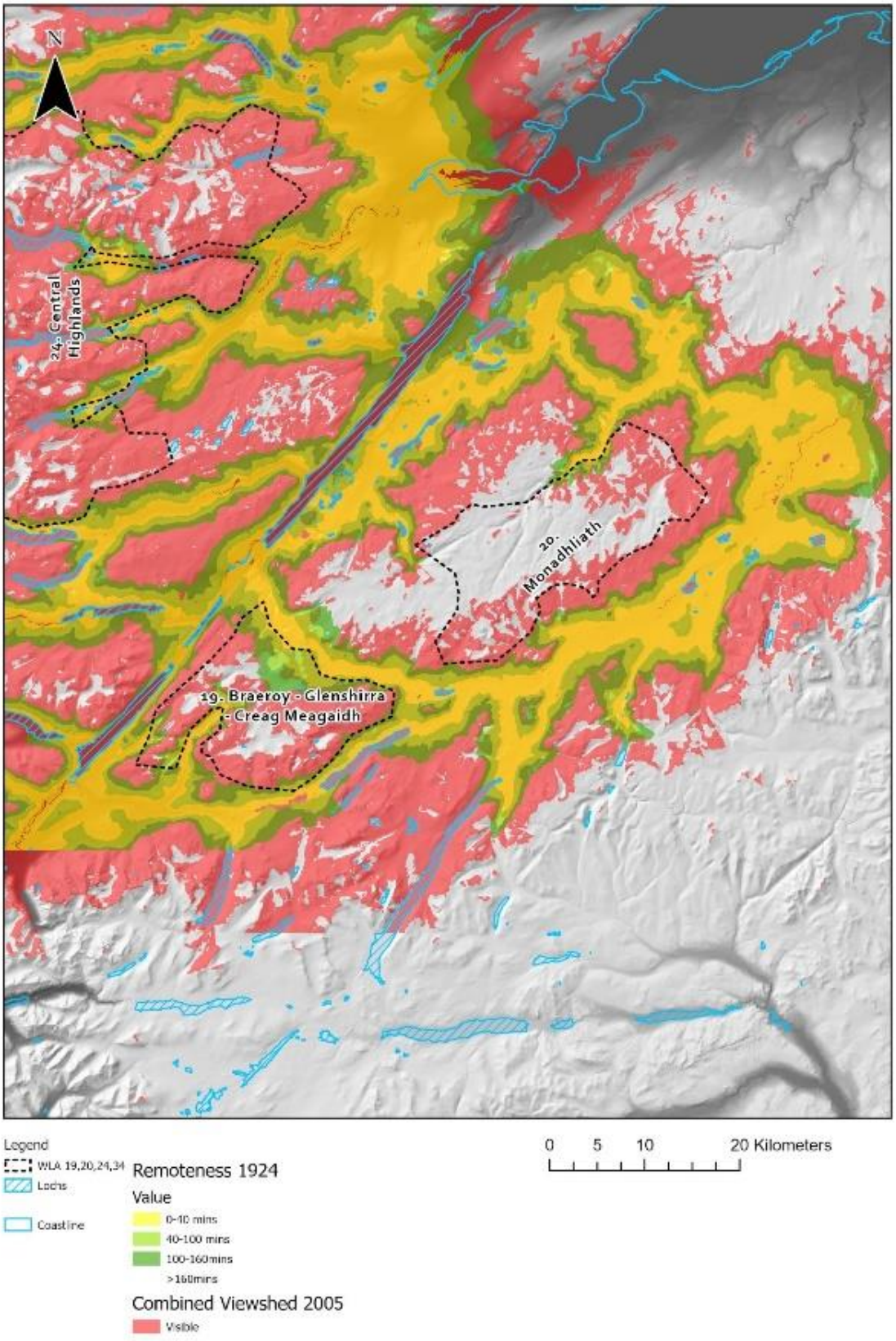
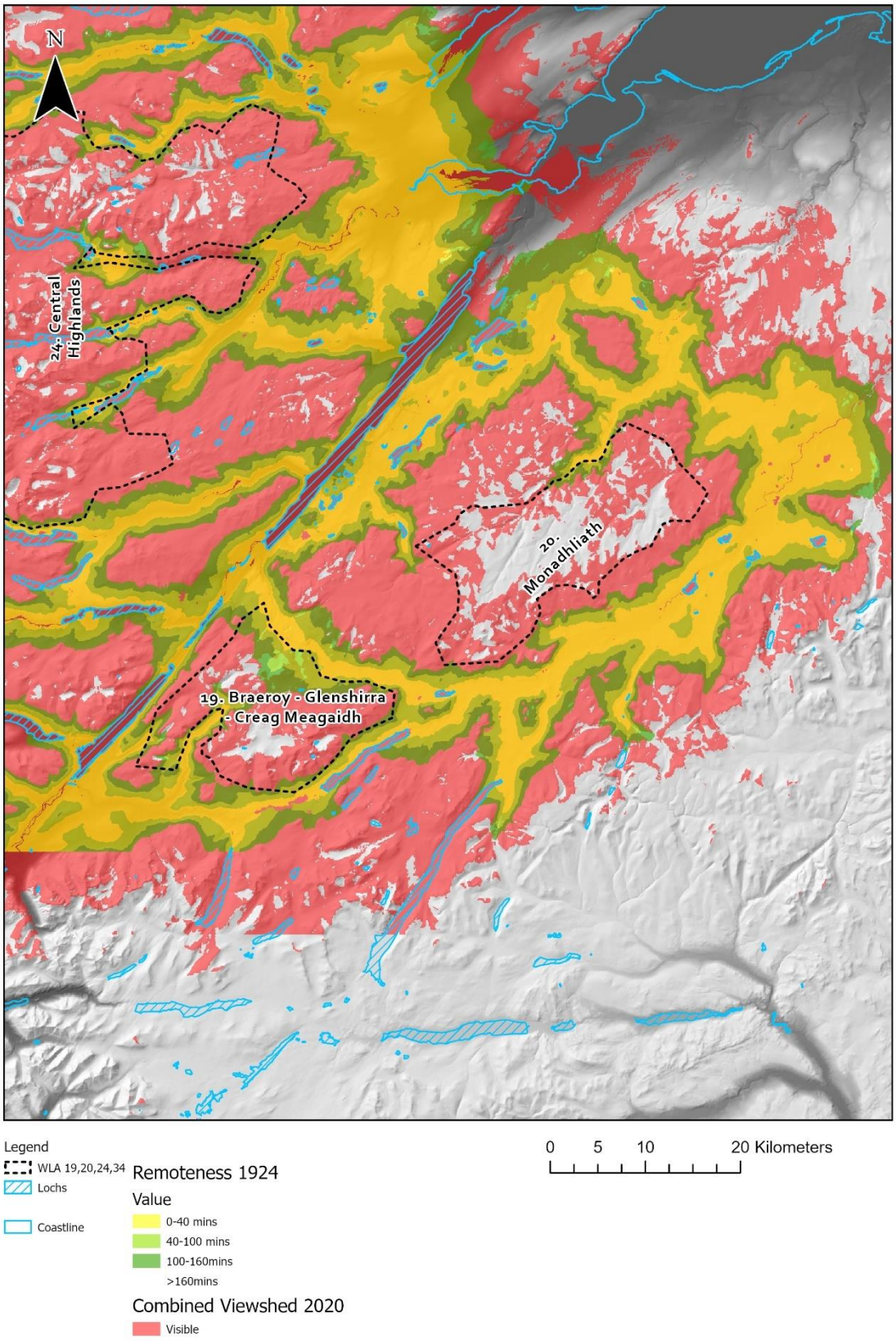


Figure 3.7 Combined viewsheds (2005) and remoteness (1924)



Figures 3.8 Combined viewsheds (2020) and remoteness (1924)

3.2 Changes in rates of loss

68. Rates of loss vary between the mapped years and the case study WLAs depending on what has happened where and when as regards development and factors impacting on wild land quality. Data on impacted areas, taking changes in remoteness and visual impact into account, are derived as both absolute area affected and percentage change. These are graphed and tabulated. Figures 3.10 and 3.11 show graphed changes for each of the case study WLAs and their 15km buffers.

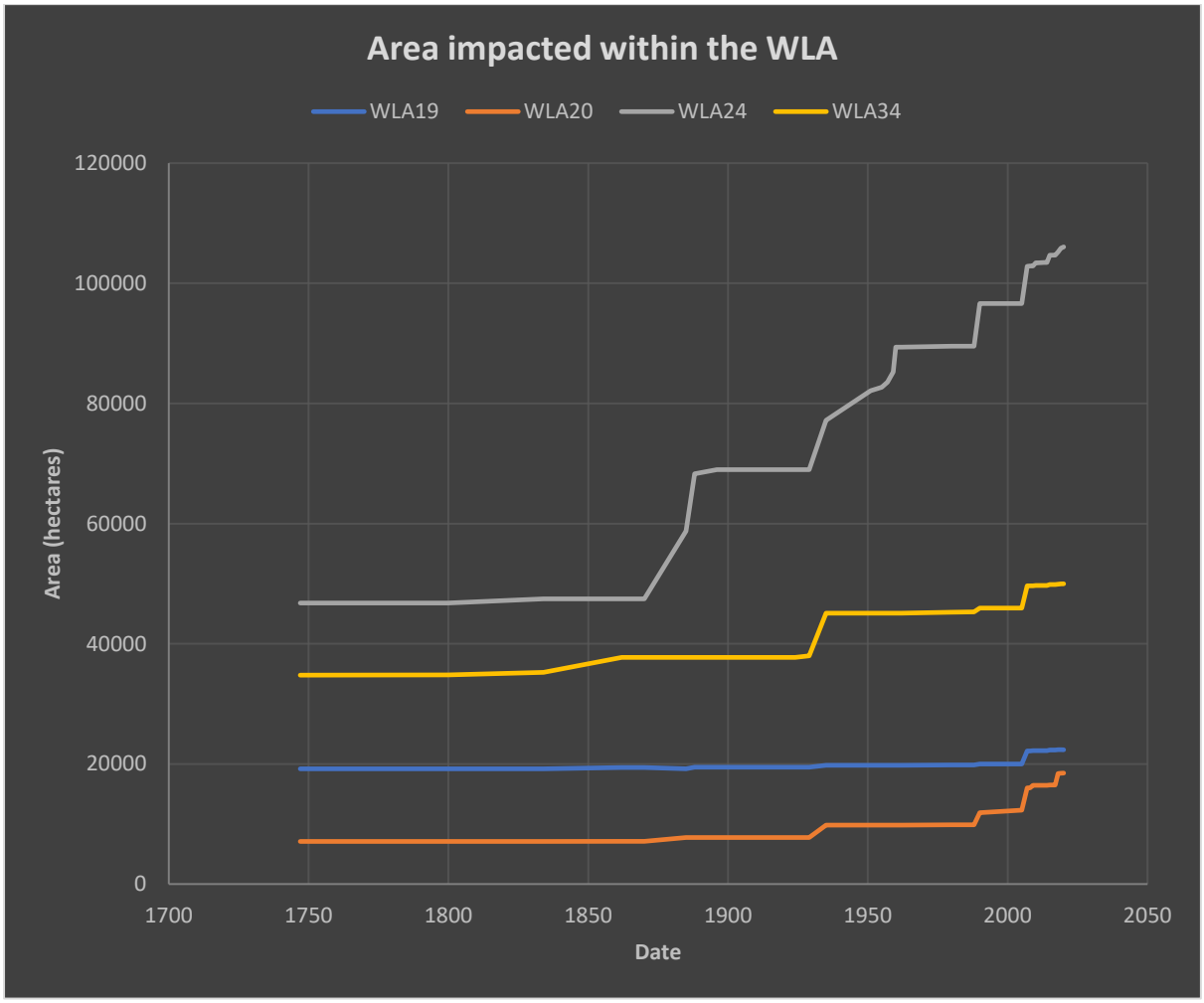


Figure 3.10 Change in impacted area (hectares) over time within WLA

WLA19 – 26,460 ha, WLA20 – 33,978 ha, WLA24 – 132,703 ha, WLA34 – 55,997 ha

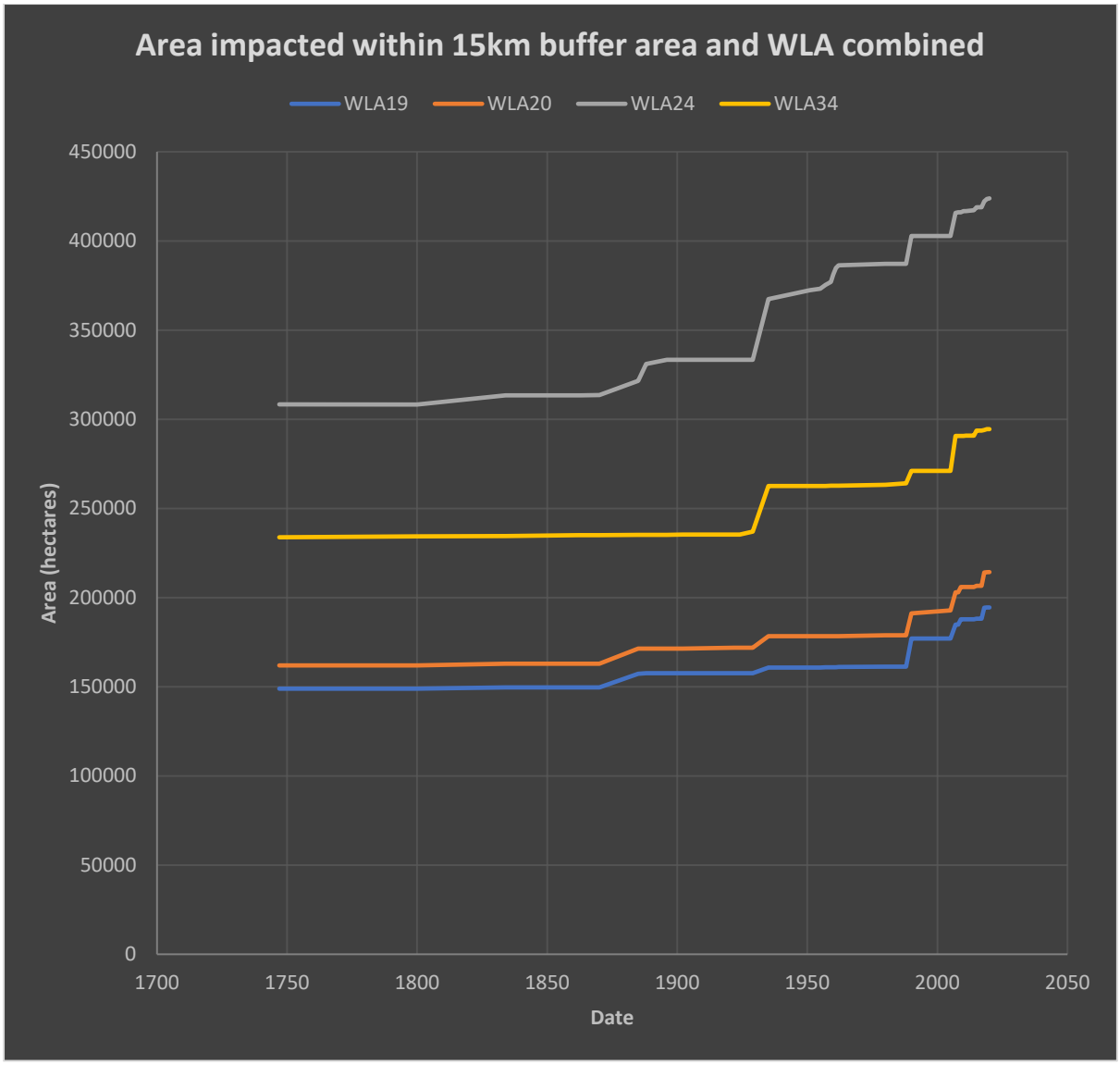


Figure 3.11 Change in impacted area (hectares) over time including 15km buffer

WLA19 – 208,184 ha, WLA20 – 236,866 ha, WLA24 – 462,010 ha, WLA34 – 322,637 ha

Table 3.1 Impacted area over time across wildland areas

	WLA19		WLA20		WLA24		WLA34	
Date	**Hectares**	**Percent**	**Hectares**	**Percent**	**Hectares**	**Percent**	**Hectares**	**Percent**
1747	19,187	73	7,095	21	46,781	35	34,778	62
1800	19,187	73	7,095	21	46,781	35	34,800	62
1834	19,187	73	7,095	21	47,467	36	35,239	63
1862	19,414	73	7,110	21	47,470	36	37,713	67
1863	19,414	73	7,110	21	47,470	36	37,713	67
1870	19,414	73	7,121	21	47,481	36	37,713	67
1885	19,197	73	7,745	23	58,765	44	37,713	67
1888	19,433	73	7,745	23	68,271	51	37,713	67
1896	19,433	73	7,745	23	68,972	52	37,713	67
1902	19,433	73	7,745	23	68,972	52	37,713	67
1922	19,433	73	7,772	23	68,972	52	37,748	67
1924	19,433	73	7,772	23	68,972	52	37,748	67
1929	19,433	73	7,772	23	68,972	52	37,990	68
1935	19,777	75	9,839	29	77,195	58	45,070	80
1951	19,777	75	9,839	29	82,102	62	45,070	80
1955	19,777	75	9,839	29	82,699	62	45,070	80
1957	19,777	75	9,839	29	83,527	63	45,070	80
1959	19,777	75	9,839	29	85,247	64	45,095	81
1960	19,777	75	9,839	29	89,373	67	45,095	81
1961	19,777	75	9,839	29	89,373	67	45,095	81
1962	19,780	75	9,839	29	89,373	67	45,095	81
1980	19,839	75	9,877	29	89,528	67	45,264	81
1988	19,839	75	9,877	29	89,528	67	45,328	81
1990	19,997	76	11,883	35	96,638	73	45,918	82
2005	19,997	76	12,294	36	96,638	73	45,918	82
2007	22,153	84	16,032	47	102,809	77	49,642	89
2008	22,173	84	16,032	47	102,899	78	49,642	89
2009	22,218	84	16,447	48	102,899	78	49,642	89
2010	22,218	84	16,447	48	103,428	78	49,676	89
2011	22,218	84	16,447	48	103,428	78	49,676	89
2013	22,218	84	16,447	48	103,465	78	49,676	89
2014	22,218	84	16,447	48	103,478	78	49,676	89
2015	22,311	84	16,486	49	104,700	79	49,872	89
2017	22,311	84	16,486	49	104,700	79	49,872	89
2018	22344	84	18,414	54	105,210	79	49,886	89
2019	22,344	84	18,467	54	105,825	80	49,941	89
2020	22,351	84	18,472	54	106,057	80	49,976	89

WLA19 total area = 25,460 ha
WLA20 total area = 33,978 ha
WLA24 total area = 132,703 ha
WLA34 total area = 55,997 ha

3.3 Main periods of development and loss

69. Examination of the maps and graphs shows that rates of loss have fluctuated over the years with periods of road building, tree planting, dam building and, more recently, wind farm construction. The initial data for all areas is 1747 (based on the Roy Maps). This shows what might appear surprising initial degrees of impact at these dates, especially in WLAs 19 and 34. This is largely due to impacts located outside of the contemporary WLAs but having impacts inside the WLA resulting from proximity to surrounding roads (affecting remoteness) and visible human features (affecting visual impact). What is import is the increasing impact from these reference points since 1747 as shown in Figures 3.10 and 3.11.

70. The mapping and associated graphs shows that degradation of WLAs typically occurs with specific events causing a relatively large loss of quality in the areas affected, followed by a period of stagnation where little to no change in wild land quality occurs. These specific events are typified by large infrastructure projects such as the development of the railway system during the mid-1800s, implementation of the national power grid in the early 20th century, the hydro power schemes in the 1960s and, finally, the ongoing wind energy boom from 2005 to the present day. From the figures below you can see the area of Stronelairg windfarm, before and after implementation, and its effect on the viewshed associated with wind turbines (Figure 3.12).

71. Sample photographs to illustrate examples of "impacts" in the case study areas are shown in Figure 3.13. Additional images acquired from both site visits and online data sources are included in an accompanying database.

3.4 Role of Scottish Government policy

72. The role of Scottish government policy in driving development and associated rates of loss are covered in detail in Section 4.

3.5 How have WLAs affected rates of loss?

73. In theory, the mapping of WLAs should have had the effect of reducing rates of loss. As explained in Section 1 of this report, although not a statutory designation, WLAs are proposed in SPP2 to "*identify and safeguard the character of areas of*

wild land" and while in these areas *"development may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation."*

74. However, it is noted that much of the large-scale development driving loss of wild land qualities takes place outside WLAs and it is the effect of these developments on remoteness and visual impact that then impacts attributes of wildness inside the WLAs. The mapping of remoteness and visual impact within the case study WLAs and a 15km buffer outside takes this into account.

75. Given that WLAs were not mapped until 2014 it is not possible to analyse the effects of their definition caused by development prior to that date. It is only possible with any rigour to consider developments post 2014. Data points for these dates are highlighted in Tables 3.1 and 3.2.

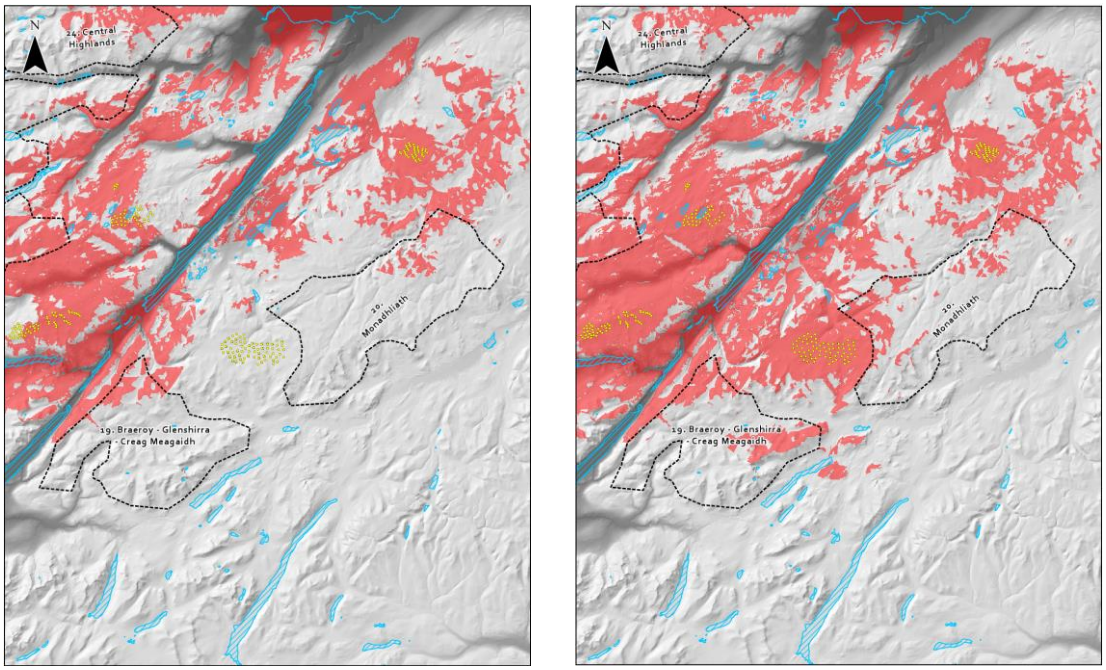


Figure 3.12 Before (2014) and after (2018) wind turbine viewsheds for WLAs 19 & 20

Figure 3.13 Sample photographs of impacts in case study areas

Caption left to right, from the top: Cassley Hydro Geograph-NC 3686 2023 / Grouse moor geograph-5719.0800N 41.3134W / Mullardoch dam geograph-5720.2470N 457.3146W / Wades Road Aviemore geograph - 5716.3493N 354.2471W / Loch Treig overflow geograph-5651.4026N 442.7573W / Achany wind turbine geograph-5720.2217N 46.3111W / Pylon construction base geograph -570.7557N 420.1813W / New power line geograph - 570.7003N 417.3414W

76. One key exception to this case is the Stronelairg wind farm application where the consent was issued just ten days in advance of the publication of the WLA maps. The critical point to note here is that this happened after SNH finalised the CAWL mapping. The timing of this decision forced SNH to re-map the wildness attributes in the Stronelairg area, with the result that the former WLA 17 (Monadhliath) totalling 828 km^2 in area was split into two areas WLA 19 (Braeroy - Glenshirra - Creag Meagaidh) and WLA 20 (Monadhliath) totalling 265 and 340 km^2 respectively. This amounts to a loss of 223 km^2 of wild land as the result of a single planning decision. The wind farm has since been built and applications have been made to expand the number of turbines with the addition of the Glenshero and Cloiche extensions. This would effectively reinstate much of the planned layout and capacity of the Stronelairg wind farm that was declined in the original application on landscape grounds. The full story on Stronelairg is given in Section 4. The Stronelairg layout is shown in Figure 3.14 and site photograph in Figure 3.15.

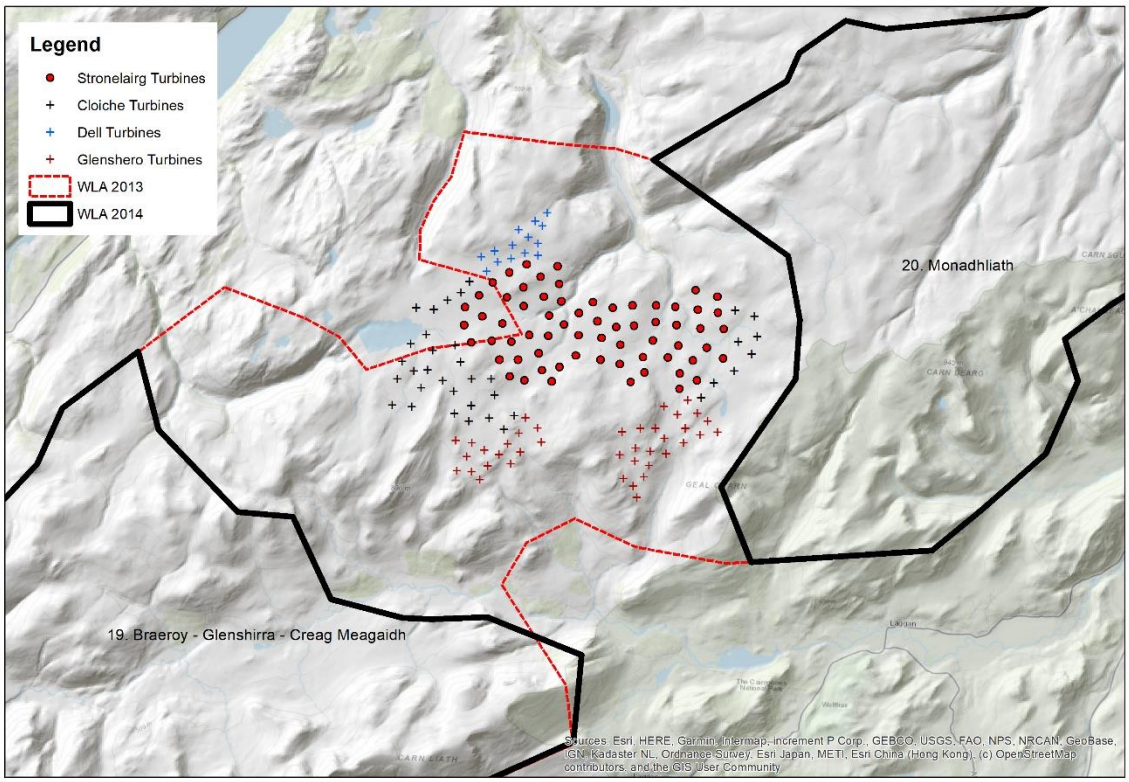


Figure 3.14 Stronelairg wind farm: effect on CAWL and WLA maps

Figure 3.15 Stronelairg wind farm looking north from Creag an Dearg Lochain (813m)

77. Mapping the footprint of plantation forestry over time and the spread of wind turbines and their viewsheds against the pattern of WLAs in Scotland gives us an indication of the effectiveness of protections of WLA since their definition in 2014. Maps of new areas plantation forestry since 1990 and the growth of wind farms are shown in Figures 3.16 and 3.17, respectively. An animation developed for JMT can be seen online[31].

78. Plantation forestry is limited by the combination of topography, geology and climate which in turn affects exposure (wind and temperature), soils (and availability of nutrients), waterlogging, etc. thus limiting potential for commercial tree growth. It is unsurprising therefore that commercial forestry plantations of whatever species are generally limited to more sheltered valley locations. Plantation forestry is therefore limited in WLA 19 and 20, but with significant amounts in the more sheltered straths of WLA 24 and 34. While some of the trees planted are native Scots pine (in addition to non-native species such as Sitka

[31] https://www.youtube.com/watch?v=se_zts1Rgbs

spruce) the manner and configuration together with uniform age, marks them out clearly as commercial plantation as distinct from native mixed woodland such as remnant patches of Caledonian forest.

79. Most forms of human land use require the construction of ‘hill tracks’ for vehicular access. Many of these tracks are not shown on the databases used and therefore had to be manually added where these were found as they will have localised effects on remoteness (assuming use of mountain bike along such tracks) and visual impact. However, the remoteness models used here are limited to vehicular access only along those roads usable by the public and so hill tracks are not included in the remoteness model except to show slightly faster off-road travel speeds on mountain bikes.

3.6 Future projections

80. If the current rate of attrition continues, it should (at least in theory) be able to make predictions as to when all wild land areas as currently defined would cease to exist. However, as per the analyses in sections 3.2 and 3.3 development, and therefore attrition, has been episodic. The Highlands have gone through numerous periods of development and change in the 300-year period covered by this study, starting with the Highland Clearances (~1750-1850), episodes of road building/improvements, the arrival of the railways in the 1860s, periods of tree planting, exploitation of hydroelectric potential from the 1950s through to the coming of industrial wind farms from the mid-1990s.

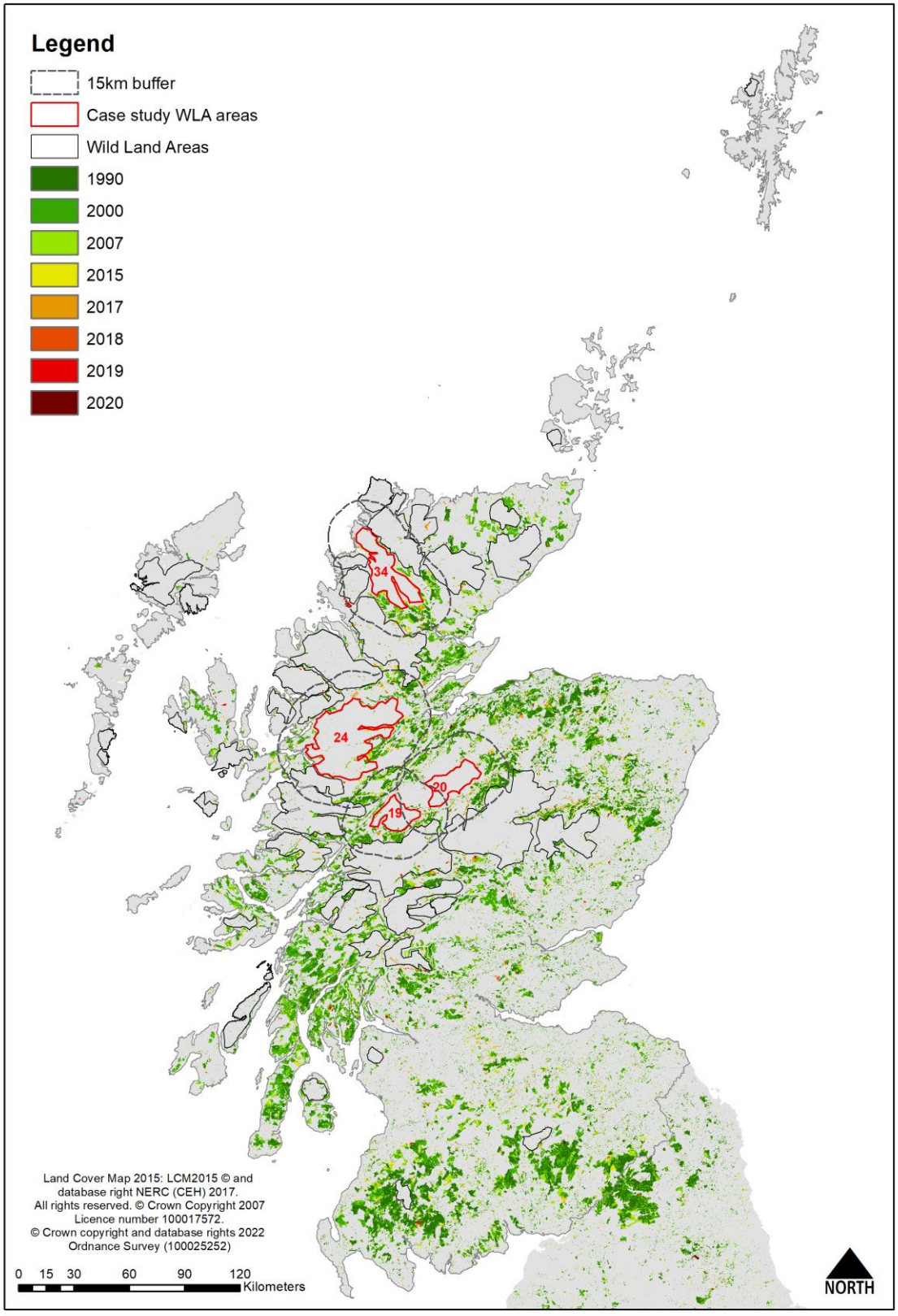


Figure 3.16 Coniferous forest in Scotland by date

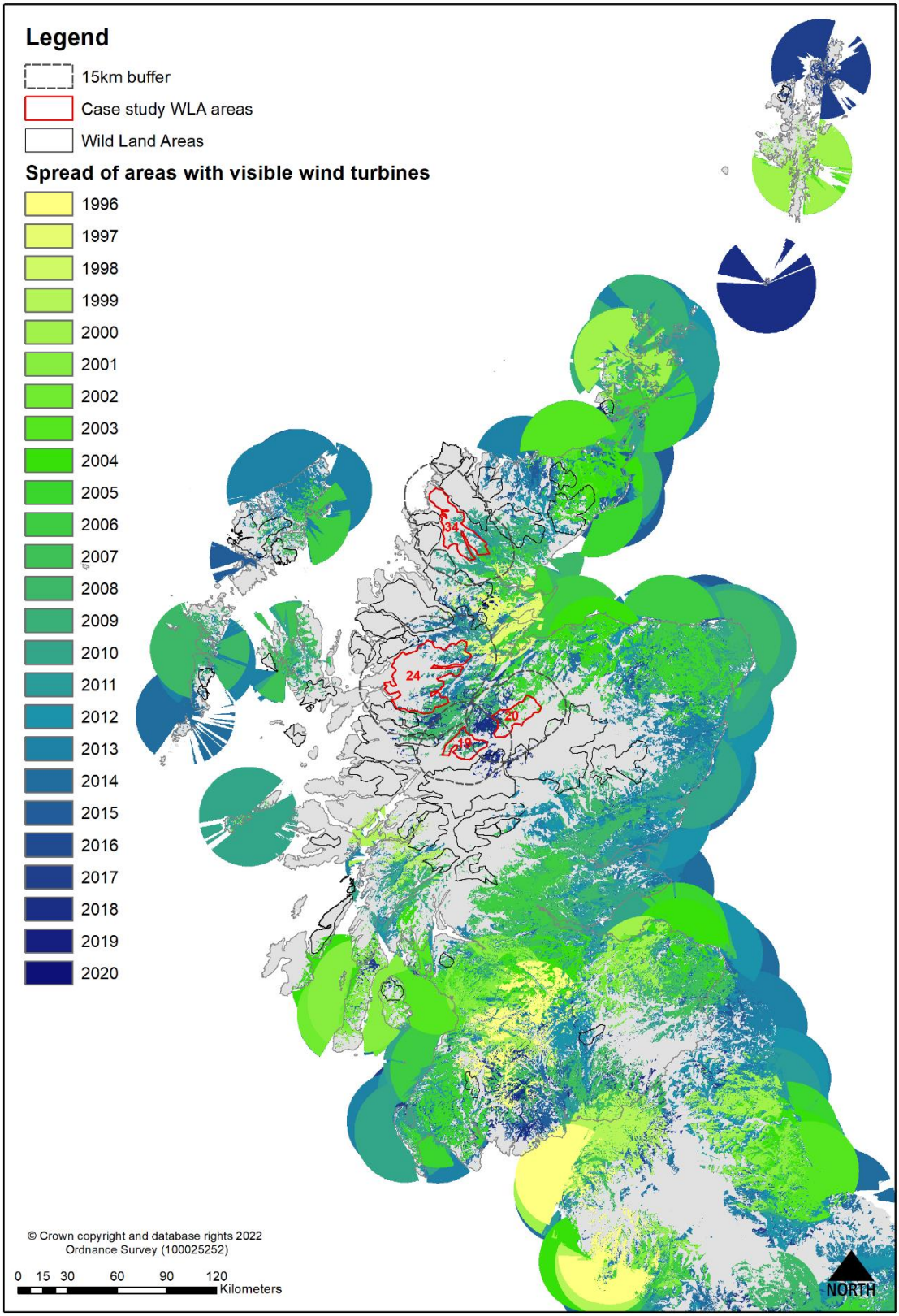


Figure 3.17 Growth of areas with visible wind turbines over time

81. The sporadic nature of much of this development, both in historical and geographical terms, makes confident extrapolation of rates of attrition difficult. The drivers of change have also evolved, including shifting patterns of settlement and land use (including agriculture and game), shifting patterns of employment and population distribution, changes in transportation and movement of people and goods, advances in technology and resource demand (most recently around energy generation and transmission), government policy and public demand for recreation and nature. These have all combined to create a complex shifting pattern of development and landscape change. Figures 3.18 shows the overall trend[32] of change across the full dataset. Under this model, area impacted will continue to increase significantly over time. Figure 3.19 shows the trend observable[33] since 2014 when the wild land areas were created, the rate of loss is lower, however with few data points since 2014 the change in trend should not be relied upon. These graphs extrapolate the past and current trends and give some broad estimates together with intercepts when all wild land areas will possibly be impact to some degree. However, it is highly unlikely that these rates will progress as either straight or exponential/power line relationships and the remoter/higher patches of wild land will persist, though just how much is undetermined.

82. It should go without saying that predicting the future is fraught with uncertainty, but over the next few decades the demand for renewable energy and ecosystem services that address the developing biodiversity and climate crises (e.g. carbon capture and storage, wildlife habitats, water supply and flood/erosion control) are likely to figure strongly in both policy interventions and development on the ground. Additionally, there is no evidence that landowners have any desire to stop building new vehicle tracks in the hills. It is highly unlikely that WLAs will

[32] Polynomial regression lines are fitted to these long-term data to best fit the trends observed. Here the pattern seen in the data shows increasing rates of attrition (y axis) over time (x axis) suggesting a non-linear relationship that is best modelled as a curve rather than a straight (linear) line. The R^2 values are reported to show the goodness of fit between the line and the scatter of data points. A perfect fit would have a value of 1.0 such that all R2 values report at >0.9 indicating a high degree of fit to the patterns observed.
[33] Linear regression lines are fitted to the post 2014 data since there are insufficient data points to infer much beyond a simple linear trend with any confidence. It is noted that the R^2 values are significantly lower as a result.

emerge untouched by these future changes either from the effects of climate change or the mitigation measures we put in place to limit these effects.

83. What we can perhaps better do is examine the options for meeting our global temperature and carbon targets that minimise or avoid further reductions in the wild land resource. If we take just wind energy, both onshore and offshore, we can through reversing the viewshed models used to map the zones of theoretical visibility (ZTVs) of the current set of wind farms, identify the areas where industrial wind turbines (120m+ in height) could be seen from if viewed from inside WLAs. Such a map of Reverse ZTVs (RZTV) is shown in Figure 3.20. This shows the zones of visual impact of a 120m+ high turbine and where wind farms could be located without being visible from inside a WLA. Colours show the degree of impact and grey areas are those where turbines can be constructed and not be visible from inside any WLA. Integrating such a map with wind energy planning data (e.g. wind speeds, topography, land use, etc.) could usefully be used to plan for extra capacity or re-powering of existing wind farms that will both help meet renewable targets and minimise conflict with WLAs and other sensitive landscapes.

84. Such approaches could also be used in planning new hydro schemes, power lines, access tracks and other infrastructure and at various scales. This approach has been successfully demonstrated in both Scotland[34] and Iceland[35]. Despite SNH/NatureScot refusal to re-run the 2014 WLA mapping methods in response to planning applications within or adjacent to WLAs, WRi and WRLtd have successfully done so and used the results to demonstrate the impact of wind farm proposals on WLAs and wild land quality. In Iceland, similar methods have been used to successfully defend against proposals for new hydro schemes in wilderness areas in the Northwest Fjord region.

[34] Wildland Research Institute (2014) Talladh-a-Bheithe Wind Farm Proposal. Review of impacts on wild land A report by the Wildland Research Institute for The John Muir Trust https://web.archive.org/web/20170116145406/https://www.johnmuirtrust.org/assets/000/000/408/talladh-a-bheithe-wild-land_lr_original.pdf?1434638853

[35] Wildland Research Institute (2019) Hvalá power plant proposal: review of impacts on wilderness: a report. https://rafhladan.is/handle/10802/28566

3.7 Future policies

85. The policies required to ensure wild land areas have a future are reviewed in Section 4.

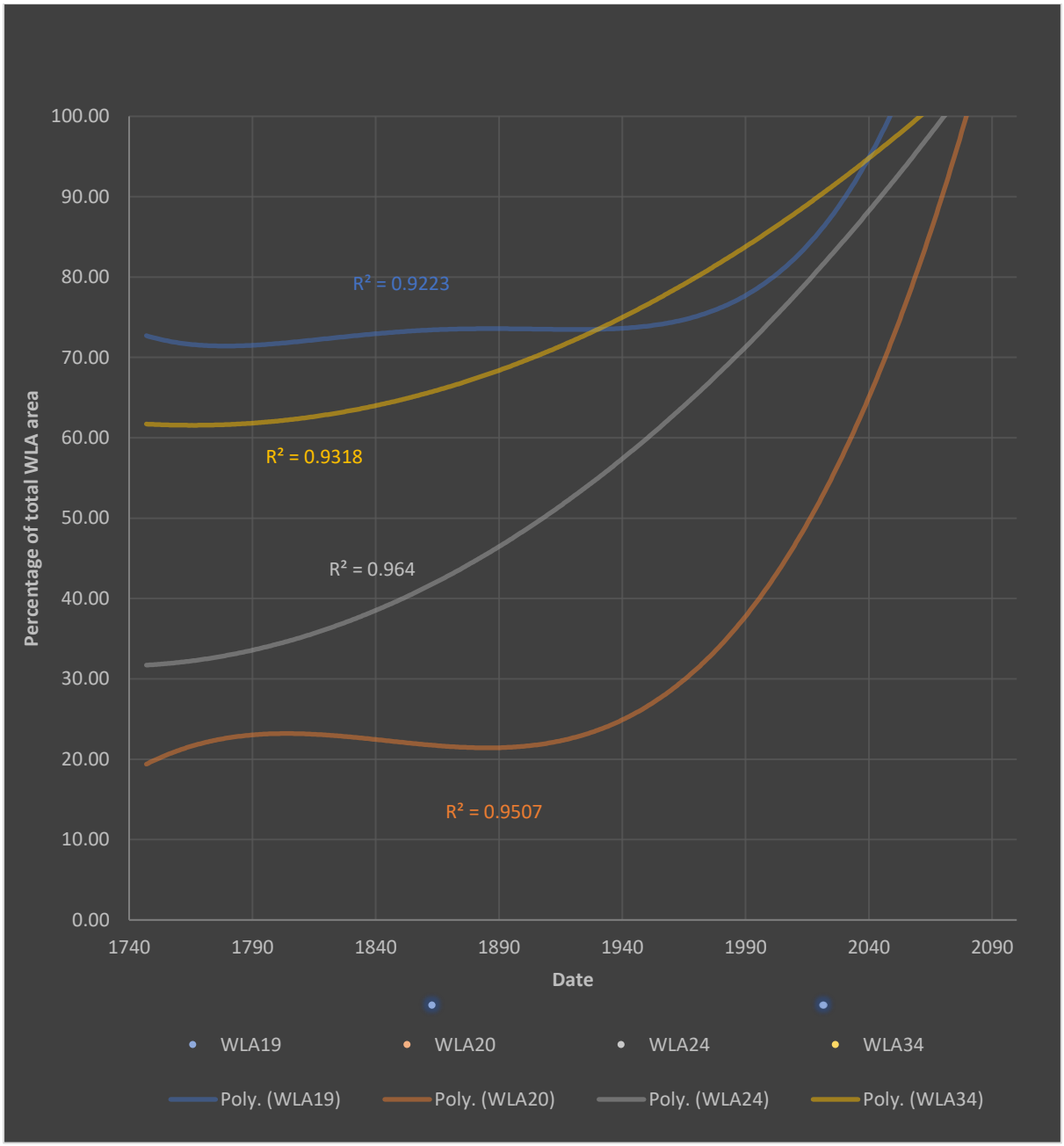


Figure 3.18 Long-term trend in wild land attrition rates (1747 – 2020) with extrapolation to 2090

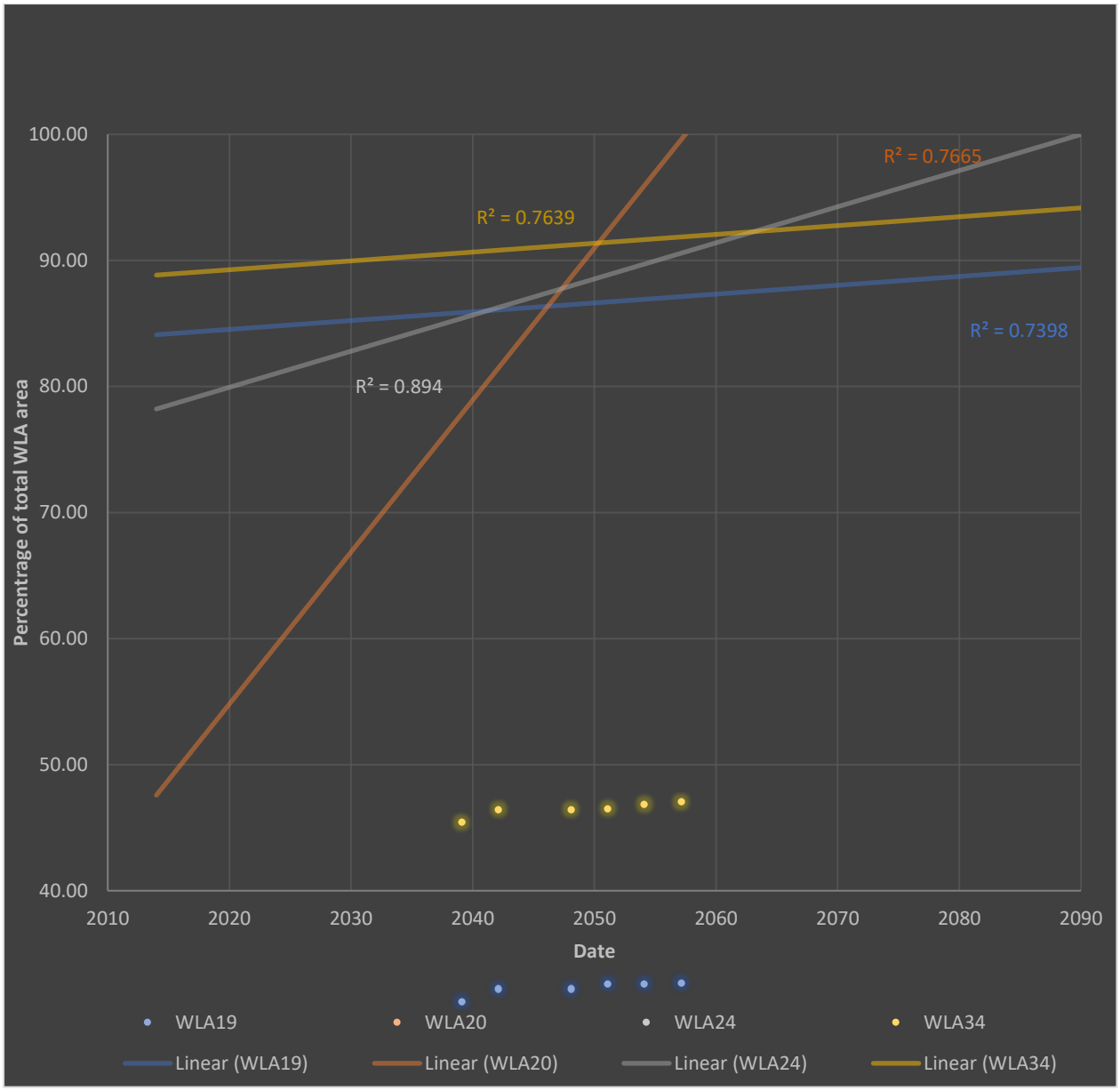


Figure 3.19 Short-term trend in wild land attrition rates (2014 – 2020) with extrapolation to 2090

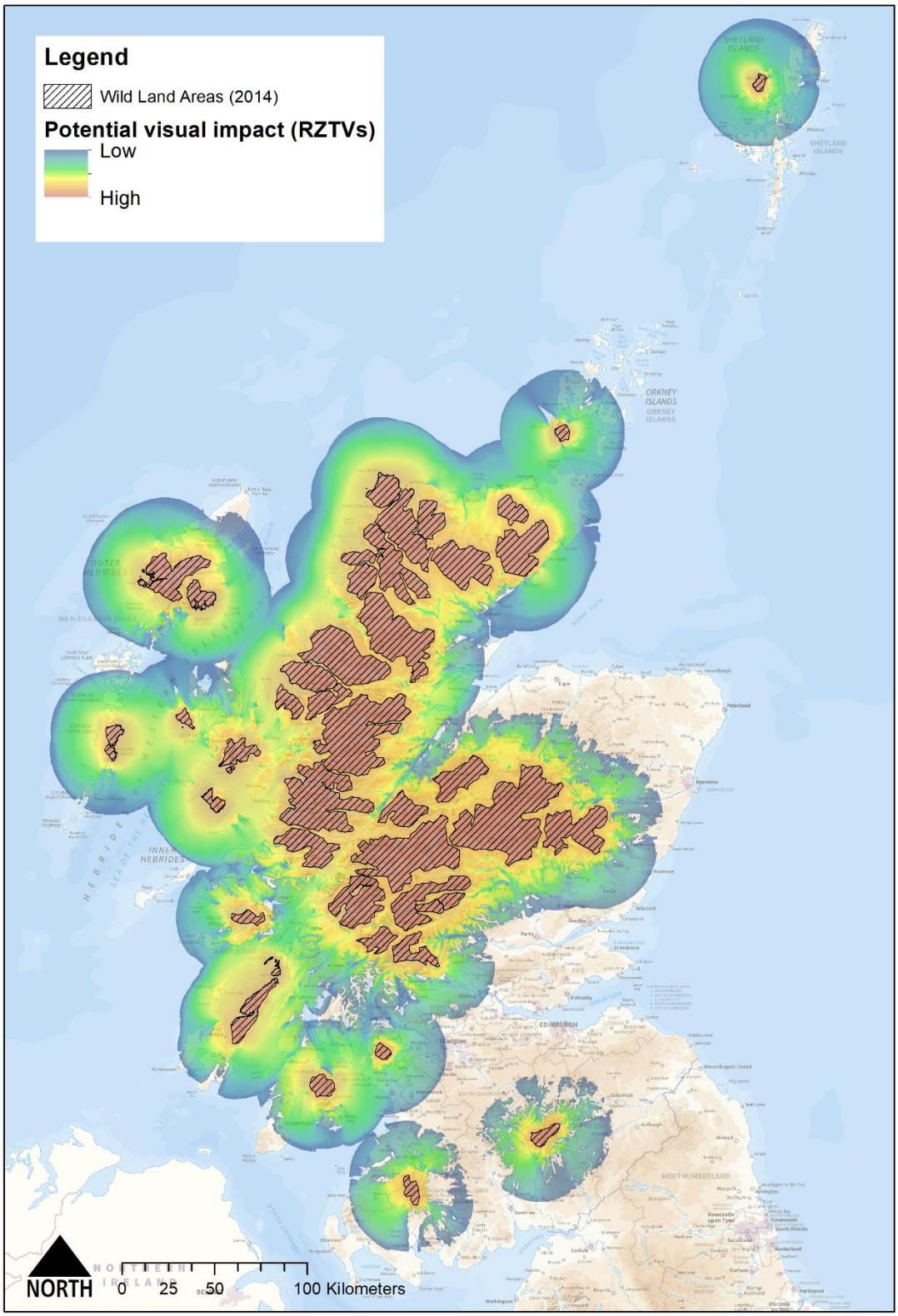


Figure 3.20 Reverse Zones of Theoretical Visibility (RZTVs) for WLAs indicating zero and minimum conflict areas for new wind farm development and/or re-powering

4. Planning and Policy Review

4.1 Introduction

86. A key part of the commissioned study into the loss of Wild Land was to consider the role of planning policy and planning decision making (including Planning Act and Electricity Act determinations) in the identified effects on the Wild Land resource. The initial tender response was essentially focussed on a historical assessment. To some extent that is covered below with reference to national policy, Highland Council policy and key planning application/appeal and decisions under S36 of the Electricity Act (with or without a Public Inquiry).

87. However, during the study period there were relevant material developments that affected the thinking about the planning assessment tasks. The Scottish Government, in late October 2021, published a consultation (to run to the 21st January 2022) on Onshore Wind Policy Statement Update. The consultation, with what is clearly an industry led, technical issues focussed, and largely one-sided document, was issued in the context of the joint SNP/Greens administration's ambitions to double the onshore wind capacity in Scotland. At the time that consultation was published, the delayed draft of the new National Planning Framework (NPF 4) had still not been published. That seemed a very strange, and perhaps worrying, sequence as, in theory, the National Planning Framework should lead on the location of national infrastructure, especially as the Onshore Wind document is extremely light in its consideration of environmental and landscape factors. However, on 10th November the draft NPF4 was eventually laid before the Scottish Parliament and published on the Scottish Government web site with a consultation period running until 31st March 2022.

88. Having regard to the conclusions reached in this report it is considered essential that a detailed response is submitted to the draft NPF4. The Scottish Parliament currently has a call for evidence in circulation, but no documentation has been seen in connection with this. Following up on NPF4 should be a very high priority next step in addressing the protection of Wild Land.

89. Therefore, it became apparent that the core planning issue around Wild Land Areas (and other wild and important landscapes) was less the history and more the future as the whole approach to landscape protection (and remote area community

regeneration) will need to be developed via NPF4, which will then become part of the statutory Development Plan for each planning authority in Scotland. Given that situation, a greater proportion of time has been spent, compared to the tender proposals, on assessing these two documents and addressing how to respond. However, the suggested responses do take full account of what has happened to date.

4.2 Key Relevant Issues from the Data Analysis

90. The historical analysis is clear. There is a history of the attrition of Wild Land operating in a series of development "events" or time periods followed by periods of relative quiescence.

4.3 Planning Procedures

91. It is important to understand the fundamentally differing approaches for wind farms depending on the proposed installed generating capacity.

Electricity Act S36 Applications

92. Wind farms with a proposed installed capacity of over 50MW (and similar pumped storage schemes) are progressed as applications S36 under the terms of the UK 1989 Electricity Act where the decision is taken by Ministers (devolved to Scottish Ministers) and not the local Councillors. If the relevant planning authority (for the locality of the development) objects, then a statutory Public Inquiry must be held. There are decision making "tests' within the Act but these are not detailed planning and environmental type development management criteria.

93. This situation is a legislative anomaly. The Act and its provisions were primarily directed at the privatisation of the state-owned Electricity Companies and the S36 provisions were designed to deal with the connection of very large thermal generating plants to the National Grid. The provisions were never designed as a means of testing the acceptability of wind farm proposals scattered throughout rural areas.

94. This is something that should have been tackled by further legislation and guidance, but it has never been addressed.

Planning Act Applications

95. Wind farms with an installed capacity of under 50MW and above 20MW (and most run of river hydro schemes) are submitted as planning applications to the local planning authority and are progressed as major developments. They must be the subject of prior public consultation and the applications must be determined in accordance with the Development plan unless material considerations indicate otherwise (the primacy of the Development Plan under S25 of the Act). That primacy does not apply to S36 applications.

Electricity Act S37 Applications

96. This is another hangover from the 1989 Act. In complete contrast to the proper linking of development and the associated infrastructure that is normal in every form of planning proposals, the provision of a grid connection for a wind farm is a completely separate application and process under S37 of the Electricity Act – even if it is utterly obvious that the wind farm and the grid connection are part and parcel of the same project.

97. The grid management companies in Scotland are Scottish Power Transmission Networks (a sister company of Scottish Power) and Southern and Scottish Transmission Networks (a sister company of SSE). Some might consider that these linkages could lead to conflicts of interest.

Battery Storage Proposals

98. Again, for battery storage the process depends on whether the proposed installed capacity is above or below 50MW (although that is not really an appropriate way of measuring the capacity of a battery storage system). These types of applications are fairly new in both systems, and it is too early to draw firm conclusions.

Summary

99. In short, there are two completely differing consenting regimes depending on the proposed installed capacity of the wind farm.

4.4 The Development of National Policy

100. Although the text below contains a brief review of the history of Wild Land Areas, the focus is on the position from 2014 onwards when WLAs were first mapped and given a degree of protection in national planning policy.

Search Areas for Wild Land 2002 (SAWL)

101. The approach to the SAWL mapping was set out in the SNH Policy Statement Wildness in Scotland's Countryside as published in July 2022. That built on the then NPPG14 on the Natural Heritage. The document addressed both wild land and wildness. The associated Annex 1 maps which showed the SAWLs do not appear to be available on the main NatureScot web site anymore.

Core Areas of Wild Land 2013 (CAWL)

102. The CAWL 2013 map identified those areas where wildness is most strongly expressed, and whose quality and extent is such that they are considered of most importance in a national context.

Wild Land Areas (2014)

103. SNH was asked by the Scottish Government to advise on whether the CAWL map effectively identifies wild land and is fit for the purpose of supporting the policy intentions first set out in the draft SPP2 published in April 2013. Their response, from 16th June 2014, took into account the outcome of a consultation exercise and set out their advice and published the now well-known map of the 42 WLAs. There was also a map showing the changes from the CAWL alongside a table giving a detailed explanation of the changes. One of the major changes was the

decision to consent the Stronelairg wind farm (made just prior to the publication of the WLA map and advice) which effectively cut the original Monadhliath WLA in the CAWL map in two to give the WLAs 19 and 20 in the WLA map.

104. The other key conclusions section of the advice contained two statements that are of direct relevance to the matters considered in this research report.

105. The first, their point v, stated "*despite the inherent subjectivity of the concept, the physical qualities most strongly associated with wildness and the identification of wild land can be mapped in a robust and repeatable way through applying a systematic and transparent methodology".* However, in assessing the effects of major wind farm proposals SNH and now NatureScot have consistently declined to remap the affected WLAs using the previous methodology. During cross examination in wind farm Public Inquiries, the NatureScot representatives have declined to say why they are unwilling to undertake remapping.

106. The second, their point vi, stated "a map of wild land areas important in the national context is required in order to provide greater clarity to all stakeholders and better inform decisions affecting them". This is relevant in terms of the draft of NPF4 (see below) where there appears to be no reference to a map of WLAs. **This is a key matter to be picked up in responding to the draft NPF4**.

107. Another interesting aspect was set out when addressing criticisms of the CAWL methodology (that was then adopted, in a slightly modified form and with updated datasets for the identification of the WLAs). This is all under the heading of Phase III in the 2014 advice and deals with: (A.9) the approach to consented but unbuilt wind farms (with the WLAs to be reviewed if schemes remained unbuilt); (A.9 & A.10) the inclusion of lower wildness areas; and (A.12) the absence of fieldwork for what was a desk-based exercise. SNH/ NatureScot have not followed through on these important aspects when it came to assessing new wind farms affecting WLAs and, also, they have failed to prevent decision makers attacking the less wild parts of the WLAs.

108. Appendices B and C in the advice addressed the possible WLAs with a comparison back to the relevant CAWLs, an explanation of the reasons for changes, and a listing of key issues. The main changes were the removal of the Upper Almond area (previously CAWL area 9) and, as noted, the splitting of the

CAWL area 17 into two WLAs (WLA 19 and WLA 20) "as a consequence of the consenting of Stronelairg wind farm".

Scottish Planning Policy 2014 (SPP2)

109. Following on from the SNH mapping exercise described above, Wild Land Areas are then mentioned in several sections of the issued SPP2. This was the first time that mapped Wild Land Areas were specifically referred to in these terms in national planning policy (other than in the draft of SPP2 from April 2013).

110. Table 1 Spatial Frameworks includes "areas of wild land" as an "other nationally important mapped environmental interest" within Group 2: Areas of Significant Protection. The national planning policy provision is that "*recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances. Further consideration will be required to demonstrate that any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation*".

111. The same table provided that in Group 1 Areas, National Parks and National Scenic Areas wind farms will not be acceptable. This was presumably for reasons of landscape and visual impact. However, the planning profession in Scotland has never really addressed the basic problem that flows from this. There are plenty of landscapes in Scotland that are every bit as impressive/precious/magnificent as the National Parks and NSAs and yet those landscapes were not also to be protected.

112. The development management criteria set out in paragraph 169 includes "*landscape and visual effects, including effects on wild land*".

113. Paragraph 200, under the main heading of Development Plans, states that "*Wild land character is displayed in some of Scotland's remoter upland, mountain and coastal areas, which are very sensitive to any form of intrusive human activity and have little or no capacity to accept new development. Plans should identify and safeguard the character of areas of wild land as identified on the 2014 SNH map of wild land areas*". This objective has not been addressed in the case of the HWLDP and there are no known instances of it being addressed in a Local Development Plan by any other planning authority in Scotland.

114. Finally, paragraph 215 "Areas of Wild Land" repeats the text from the earlier entry for Table 1 Group 2 areas of significant protection. This applies, as stated, only in respect of developments within the mapped WLAs.

National Planning Framework 2014 (NPF3)

115. Many of the provisions in SPP2 are also cross referenced in NPF3. Para 3.23 refers to onshore wind, restates the approach in respect of National Parks and National Scenic Areas and refers spatial frameworks in SPP2. Paragraph 4.4 refers to the landscape. It states "*landscape quality is found across Scotland and all landscapes support place-making…… We also want to continue our strong protection for our wildest landscapes – wild land is a nationally important landscape*."

Onshore Wind Policy Statement Consultation (OWPS 2022)

116. Much of this consultative draft is around technical issues that will need to be addressed if objectives to increase onshore wind energy generation are to be achieved. It looks to address both new sites and repowering of existing sites. It is a document mainly addressing technical issues rather than a planning document that seeks to set out anything new in terms of the application of the planning balance to cases.

117. The Ministerial foreword refers to onshore wind as a cheap and reliable source of electricity generation. It is, of course, an intermittent electricity generation source and as well as day to day intermittency and reported lower wind speeds impacting on production and on Scotland's GDP, this last two years has shown the effects of generally lower wind speeds on the output and profits of wind farms. The assertions on economic benefits do not address the concerns set out recently by the Unions Unite and the GMB. In terms of environmental concerns the foreword advises that any capacity should be developed in a way that is fully aligned with and continues to protect our natural heritage and native flora and fauna. Sadly, there are wind farm consents (such as the Strathy South Variation where both NatureScot and the RSPB objected on ornithological grounds) that do not meet this laudable objective.

118. The discussion on repowering notes that, generally, communities are more favourably disposed to the repowering of an existing scheme rather than a new scheme in a new location in the area. That tends to suggest that the focus for growth, if there is to be more onshore wind generation, should be on repowering and life extension. That would ease the development pressure on the WLAs.

119. Much of the document, in Chapter 3, is about the future resolution of what are seen as the main technical barriers to increased deployment. These issues are broadly speaking generic and the solutions being consulted upon are not specific to the current decision making on current wind farm cases.

120. Chapter 4 addresses Environmental Factors. There is no doubt that the issue of noise assessment needs to be comprehensively updated. The Assessment and Rating of Noise from Wind Farms study (ETSU-R-97)[36] was prepared at a time when turbines were considerably smaller than the current turbines and when there was less of an issue with cumulative noise. However, any such update will be long after the decision making on current schemes has been completed. The issues raised in terms of peat and forestry again deserve to be widely debated.

121. Section 4.1 describes the understanding of the landscape and visual impact as remaining "an evolving area". That is an understatement. As individual turbines have increased in height from 65m to 250m and as the cumulative position has become more and more complex (including accounting for consented but unbuilt schemes as well as scoping schemes) the visualisation techniques have hardly moved forward at all. This is in marked contrast to the rapidly evolving use of modern visual technologies in other spheres such as architecture or computer gaming or virtual reality. Where an effort has been made to use new technologies, such as the Wild Land Area impact mapping by the WRi at Leeds University, NatureScot, Reporters and Ministers have all declined to give it any weight. However, again, the much-needed progress will not be completed in time for the decision making on current applications that are before Ministers for determination.

[36] The Assessment and Rating of Noise from Wind Farms (1996) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/49869/ETSU_Full_copy__Searchable_.pdf This is the technical guide, published by the UK Government, for the assessment of wind farm noise. It is hopelessly out of date and does not address significant effects in EIA terms.

122. In addition, there appears to be no current intention to have mapped spatial framework, at national level, to help guide wind farms nor is there any proposal for a new updated map of the WLAs to reflect what has been consented and built since 2014.

123. Overall, it is accepted that the consultative draft does raise a number of aspects where significant work is needed. However, the need for that future work does not add to the case for consenting any current applications before Ministers for determination.

Draft National Planning Framework 2022 (NPF4)

124. For the first time the National Planning Framework will, when adopted, be a statutory part of the Development Plan. It is also, just now, the start of an extensive consultation period during which, without doubt, many very differing views and suggestions will be generated. In addition, in the NPF4 Position Statement from last year, Scottish Ministers clearly stated that the provisions of SPP2 and NPF3 would continue to apply until such time as NPF4 was adopted by the Scottish Parliament. Therefore, notwithstanding the following comments, it would be entirely premature to try to use any particular aspect of this very recently published 131-page draft as a basis for the determination of any current application.

125. A series of questions are set out in the draft in order to assist with responses. Some of these are considered briefly below.

126. In terms of Question 1 on delivering future net zero places, there are many ways to build in resilience and adaptation that do not involve poorly located onshore wind farms, including those affecting WLAs – especially given a suggested approach that looks to link tackling both climate and nature issues.

127. In the regional spatial framework parts of the draft there are references to repowering and extending existing wind farms but no references to extensive new wind farms in new locations.

128. Electricity generation, from renewables of over 50MW installed capacity, are included within National Development No.12, but without any updated spatial guidance or guidance on the assessment of such proposals.

129. In terms of the proposed National Policies, the suggested Policy 1 on a Plan Led Approach to Sustainable Development is something that should be endorsed and it should be applied to future S36 wind farm applications. Policy 2 on Climate Emergency is focussed on emissions reductions and this can be achieved in a variety of ways. It is set alongside Policy 3 on the Nature Crisis and that is a key consideration where the policy test is to be conserve **and** enhance biodiversity (emphasis added). In relation to the suggested Policy 4 on Human Rights and Equalities it will be interesting to see how Reporters and Ministers take into account significant community opposition to particular wind farms. It will also be interesting to see how Reporters and Ministers address the suggested Policy 8 Infrastructure First when considering wind farms in advance of considering the grid capacity issues.

130. There is a section on Green Energy. This promotes a Plan Led approach as well as supporting the repowering, extension and expansion of existing wind farms. Proposals will still be required to address **net** economic impact (emphasis added). Landscape and visual impacts, including impacts on wild land remain as one of the specific considerations to be addressed (although this seems to relate to all areas of wild land rather than to just the mapped Wild Land Areas from 2014).

131. Overall, there are a number of interesting and potentially relevant aspects to be applied after the final version of NPF4 is Adopted. However, the key consideration for the moment is that this is a very early stage in the consultation on, and consideration of, this draft and, therefore, the focus now should be on using this research report to inform a significant response to the draft.

4.5 Local Policy and Guidance

132. This section of the planning assessment examines the development and application of Guidance and Policy for the assessment of wind farms by the Highland Council. It starts by examining the approach to Supplementary Guidance as the initial Guidance predates the current Local Development Plan.

Supplementary Guidance

133. The initial Supplementary Guidance was the Highland Council Renewable Energy Strategy (HRES1) from May 2006 and was based on a detailed study of 40,000 grid squares addressing renewable energy resource, technical and environmental/planning constraints, and costs. A 2020 target for installed capacity of 4,000MW was set.

134. In Figure 6.2.4 prospective development zones for wind energy were identified. The vast bulk of the Highlands was coloured red – presumption against development – with only extremely limited preferred and possible development areas. HRES Policies E5, E6 and E7 gave effect to this figure. Even for local scale developments of single turbines or small clusters of turbines the bulk of the Highlands was still coloured red.

135. An interesting aspect to note is that HRES1 also set out a spatial framework and specific guidance for hydro schemes as an integral part of the document. That approach has never been repeated in any subsequent guidance.

136. It is considered that this HRES assessment more or less got it right. However, it was attacked by wind industry interests at the first wind farm Inquiry where it was considered – Achany – and was more or less abandoned after that decision was issued to grant permission to the wind farm. A present-day visit to the Struie viewpoint should convince the viewer as to the validity of the HRES position.

137. This abandoned guidance was replaced by the April 2011 Draft Supplementary Guidance: Onshore Wind energy. Cumulative impact was identified as a key issue to be addressed. The introduction stated "*each proposal must be considered on its merits and we must safeguard parts of the Highlands having regard to constraints identified*." The draft had been informed by a 2010 Landscape Sensitivity Study undertaken by the consulting arm of the then Macaulay Institute. Interestingly, "large" turbines are defined as those with blade tips above 80m. A draft spatial framework and guidance was set out but was clearly based on old standards.

138. The final version this Interim Supplementary Guidance was Adopted in March 2012. This introduced a "very large" turbine definition for turbines of over 140m

to blade tip. Maps were included to show Stage 1 Areas of Significant Protection, Stage 2 Areas with Potential Constraints, and Stage 3 Areas of Search. The Stage 3 areas covered about 50% of the Highlands, a dramatic change from HRES1. Development Guidance was given in the form of expanded text on each of the criteria in HWLDP Policy 67. Wild Land is mentioned in paragraphs 2.24 to 2.26 which covered the ongoing SNH work on mapping wildness qualities and the intention of the Council to produce Supplementary Guidance on Wild Land. That Supplementary Guidance was never produced.

The Draft Onshore Wind Energy Guidance (OWESG)

139. The above 2012 Interim Guidance from Highland Council was followed by onshore wind energy consultation papers in 2014 and 2015 followed by a draft guidance document in 2015. The various iterations were reflective of discussions ongoing around ever larger wind farm proposals at application and Inquiry stages.

140. For the purposes of this report the assessment of guidance can move directly to the final Adopted version of OSWEG (Adopted after clearance by Scottish Ministers).

The Final OWESG (and Loch Ness Study Area) – November 2016 and August 2017

141. This extensive document provided further detail on the consideration of the criteria in the HWLDP Policy 67 as well as setting out a spatial strategy including a detailed study of the Loch Ness area. The second, later part of the document was a detailed Landscape Sensitivity for the Black Isle, Surrounding Hills, Moray Firth Coast and Caithness.

142. The initial document did set out to define a spatial strategy using the SPP three groups approach with Wild Land Areas being in group 2, significant protection, as per SPP2. An attempt was made, in section 5, to define a Highland Strategic Capacity (for wind farms). A number of study areas were identified and a study approach was set out. However, only the Loch Ness Study Area had been completed at that time and, so, it was the only study area that was reported in Guidance that was Adopted and became a formal part of the HWLDP as statutory Supplementary Guidance. The document was potentially very useful but the

Council Officers seemed reluctant to use it to its full effect in subsequent appeals. The situation might best be summed up with the second Druim Ba wind farm appeal. That proposal was located within LN8 in the Loch Ness Study Area. The document text was very precise – no scope for medium or large-scale turbines. The local objectors set out a very simple case based on that conclusion. The wind farm appeal was rejected but the Reporter specifically stated in the appeal decision letter that he did not regard the words used in the Study Area – no scope etc. – as preventing him from approving such a scale of wind farm in that location.

143. The final OSWEG is relevant to the consideration of wind energy and Wild Land Areas. It identified key views, key routes and gateways. It divided Caithness into ten landscape character types (CTs) and for each it assessed sensitivity, current wind energy development and the potential for wind energy development. Generally, there was only limited potential for larger scale development within parts of the moorland interior, some scope for limited medium scale wind energy development on the rolling agricultural land and only small and micro scale development would be appropriate on the coast. This guidance was detailed in the sections of the document for each CT. The current day outcome, in terms of consented wind farms, is that many large-scale wind farms have been approved contrary to the clear guidance in the document. It must be doubtful if the document has much current value in wind energy decision making since decision makers insist that such documents are only guidance and cannot in any way predetermine the outcome of applications.

The Highland Wide Local Development Plan (HWLDP) – Proposed Plan September 2010

144. Within the Proposed Plan, renewable energy developments were addressed in Policy 68, a fairly standard criteria-based policy approach seeking to ensure that proposed developments were not significantly detrimental having regard to significant effects on the aspects set out in the Policy. The Policy started by stating that renewable energy proposals should be well located to the source of the primary renewable resources (undefined) that are needed for their operation.

145. The reasoned justification for the Policy stated "the Council will expect developments to benefit the local community and contribute to the wellbeing of the Highlands".

146. In terms of Wild Land, paragraph 21.1.2 included "Wild Areas" as local and regionally important features. In terms of Policy 58 the test was to ensure that developments did not have an unacceptable impact on the resource. No assessment criteria or guidance was given. Policy 62 on Landscape was a short generic policy that did not mention Wild Areas.

147. The proposed Policy 68 was the subject of a very considerable number of objections and representations. In relation to the aspects of these objections and representations relating to Wild Land the Council took the view that the relevant policy was Policy 58 until such times as Wild Land (Areas) was identified.

The Adopted HWLDP – September 2012

148. The Adopted HWLDP clearly predates SPP2 and the definition and mapping of the WLAs (June 2014). For WLAs there was no change to the text described above.

149. The preamble to the Policy was changed by the Examination Reporter without him hearing any oral evidence of any sort. The text, interestingly, still refers back to HRES1 of 2006 despite it then not being used to guide decision making. The Policy, now Policy 67, continued with the same criteria-based approach as before. It can be noted that the same paragraph is repeated twice in the preamble (paras 22.1.5 and 22.1.8) and states: *"The relative significance of any particular consideration listed in Policy 67 in the decision-making process may vary with and depend upon the type and scale of scheme proposed, and the appropriate weight to be applied will be determined having regard to the circumstances of the particular proposal and with reference to the development plan as a whole and any material considerations."*

150. It is considered that this statement, combined with the lack of any other guidance on how to use the criteria based Policy (for example, is it a breach if one criterion is failed or does a project have to fail them all?) creates a policy approach that is

almost meaningless as it can be interpreted any way that a particular Planning Officer chooses to do so on a case by case basis. It leads to inconsistent decision making, for example the Officers objecting to the Strathy Wood S36 wind farm but not objecting to the much larger and immediately adjacent Strathy South wind farm with its much taller turbines.

151. Nonetheless, this is the Policy that has been operated as the key decision-making parameter for wind farms within the Highlands for the last ten years.

The Next HWLDP

152. The Council has taken decisions to postpone the preparation of its next HWLDP until the position with the proposed NPF4 is clearer. An NPF4 Position Statement was published in December 2020 and the draft of NPF4 was published in November 2021. It is understood that the Council now intends to start the processes for the proposed HWLDP2 in Spring 2022. It is likely to be two years before the Plan is Adopted.

Conclusions

153. There has been no Development Plan led and directed consistent framework of decision making, and at the Highland Council level there has never been any specific HWLDP map-based policy and/or guidance to afford significant protection to Wild Land Areas. Effectively there has been no land use planning for wind energy and the outcome has been a raft of random and often contradictory decisions that have had a significant adverse effect on the landscape. Travelling throughout the Highlands does appear to take the considerations back to HRES1 being correct.

4.6 The Role of Designations – SPAs/SACs, NSAs, WLAs, National Parks

154. This section briefly considers the interactions between the key international and national designations and wind energy developments.

155. It might be thought that these international designations would lead to the areas and species involved being afforded significant protection from the adverse effects of wind farms given the terms of SPP2 and its Table 1. However, SNH/NatureScot have taken to always applying a test of whether or not "the integrity of the designation" would be materially harmed. It then transpires that to fail this test would appear to require the complete destruction of what is being protected. In a recent wind farm case (Glendye) in Aberdeenshire NatureScot has withdrawn its ornithological objection even although the wind farm has been assessed as leading to the deaths of 33 Golden Eagles during its lifetime.

156. It has also been clear that there has been a lack of understanding on how to assess the cumulative effects multiple different projects (for example a combination of wind farms and the Sutherland space port) on the same SPA and/or SAC assets. Indeed, it is rare to see cumulative SPA/SAC effects mentioned in any wind farm application response from NatureScot. In fairness, however, the RSPB has been much more robust in assessing the ornithological effects of wind farms and other projects.

National Parks

157. There does not appear to have been much interest in major wind farms in the immediate vicinity of the Loch Lomond and Trossachs National Park although some wind farms proposals in Argyll and Bute have been assessed in terms of potential effects on the National Park, but no significant effects were identified.

158. In terms of the Cairngorms National Park the provisions of national planning policy, and local planning policy have ensured that there are no wind farms within the Park. However, despite the Park Management Plan (ministers area signatory to that Plan) having a clear policy to oppose wind farms outwith the Park that effect the Park, the outcomes have not been good. Allt Duine (see below) was refused consent by Ministers. A ring of wind farms has been approved or built at varying distances beyond the western, northern and eastern boundaries of the Park, including the Dorenell wind farm some of whose turbines are virtually on the Park boundary. These wind farms, to varying degrees, will have effects on the Park that

are similar to the aspects identified in the Allt Duine case. Part of the reason for this situation might be the apparent reluctance of the Park Authority to become consistently actively involved in wind farm cases outwith the Park boundary, preferring to rely on advice from SNH/NatureScot who themselves will normally only go to Inquiry on a national intertest objection.

National Scenic Areas (NSAs)

159. The situation with the NSAs is very similar to that with the National Parks. The provisions of national planning policy has prevented the approval of wind farms within any of the NSAs but, with rare exceptions such as Dullater Hill wind farm (refused because of the effects on the very close by Dunkeld NSA) and Sallachy (refused in part because of the effects on the Assynt – Coigach NSA), the absence of any buffer zones has meant that wind farms that have an adverse effect on the NSAs can still be approved.

Wild Land Areas (WLAs)

160. The WLAs within Scotland have not been consistently afforded the significant protection set out in SPP2 (this point is further considered below when addressing the case studies). The crux of the problem is twofold. Firstly, SNH/NatureScot has never sought to replicate the WLA mapping exercise when major new projects, affecting WLAs, have needed to be assessed despite the original methodology being specifically required to be repeatable. Secondly, SNH/NatureScot has published descriptions[37] of the WLAs, setting out attributes and qualities, alongside a (very much criticised) disaggregated methodology for assessing the effects on individual qualities.

161. This has led to two effects. Firstly, allowing WLAs to be sub-divided into sub areas for assessments and with decision makers allowing schemes if the effect the "less wild" parts of the WLA, despite the same policy protection applying to the whole of the WLA. Secondly, all assessments of effects of wind farms on WLAs are entirely subjective and based on the values-influenced professional judgement

[37] https://www.nature.scot/doc/wild-land-areas-map-and-descriptions-2014

of individuals standing at a few viewpoints. It is not understood how this approach can cope with scenarios of multiple wind farms at multiple stages in the implementation process affecting the same WLA resource.

Conclusions

162. It has only been the "banning" types of designations, the NSAs and the National Parks, that have resulted in their being no commercial scale wind farms within those designated areas. However, that has not prevented these areas from suffering adverse effects from wind energy developments as the absence of any buffer zones means that wind farms can be consented and built right up to the boundary of the designation (as happened with Dorenell and the Cairngorms National Park Authority).

4.7 The Key Policy Drivers

163. It is relatively straightforward to identify the key policy drivers that have influenced national and local policy position summarised above. These drivers have been:

- The increasing renewable energy targets from the Scottish Government;
- Climate change and the subsequent "climate emergency";
- The focus on wind energy as the main way to achieve the above targets, but also with priority given to smaller run-of-river hydroelectric schemes;
- A marked insensitivity of decision makers towards the intrinsic value of the landscape despite what policy said about its value and protection; and
- The unwillingness of the planning profession to challenge the lack of evidence for any beneficial effect from what was happening in terms of comparing the claimed climate change effects with any evidence of any effects.

164. The outcome in terms of a sample of cases affecting the four selected study sample WLAs is addressed in the following section of the study report.

4.8 Sample Applications within the WLA Study Areas

165. In terms of considering the effects of major proposals on the four study WLAs, the key development issues impacting on Wild Land (and therefore on the loss of Wild Land) can be identified from addressing a sample of the main wind farm applications.

WLA 19

166. The Allt Duine S36 wind farm proposal presents an interesting case study given the key dates in policy development. The application, for 39 turbines on a site to the west of Aviemore and to the immediate north of WLA 39 (and also straddling the National Park boundary), was submitted in February 2011 and determined in July 2015, following a Public Inquiry held in October and November 2012 (with the PLI Report being submitted in June 2013). Therefore, it straddles the issues of SPP2 and the WLA maps. Some commentary on the case is given below by way of the decision letter from the Scottish Ministers as the application process and the Public Inquiry process were both extremely long and complex, including a late consultation seeking views on the implication of the amended policies on Wild Land and NSAs.

167. Ministers disagreed with the Reporter's key conclusions and with her recommendation for approval. Landscape and visual effects were the key determining issue for Ministers in respect of impacts on the National Park and on Wild Land. The decision letter set out the view of Ministers on the assessment of the application in terms of the Park's and Council's various planning policies. Much of the detailed consideration of the landscape and visual effects was in respect of views from the National Park, and particularly from the mountains. Wild Land effects were specifically addressed in the light of the amended SNH national interest objection (post SPP2) and in the light of Supplementary Environmental Information (SEI) submitted in November 2014. Ministers found that the Wild Land impacts would not be acceptable. The proposal was rejected on account of the combination of effects on the National Park and on Wild Land being not acceptable.

168. Two interesting points arise from this case. Firstly, reading the very careful analysis in the decision letter and looking at the weight given to the effects on the Park and the WLA, it is difficult to reconcile how Ministers have consented other equally harmful wind farm proposals. Secondly, in the very detailed assessments and visualisations submitted with the SEI, the applicant clearly showed that the Allt Duine proposal would have less effects on Wild Land than the by then consented Stronelairg wind farm, and that the area of Wild Land deleted as a result of Stronelairg should have been much larger.

WLA 20

169. The Stronelairg S36 wind farm proposal, submitted in July 2012 and consented on 6th June 2014 (just days before SPP2 and the WLA maps were published) was a highly controversial proposal whose consent was the subject of an unsuccessful Judicial Review challenge. Correspondence between civil servants and the then SNH, released under Freedom Of Information and Court proceedings, set out clearly the time pressured efforts by Ministers to get this consent issued in advance of the SPP2/WLA maps date in the clear knowledge that it would have severe effects on Wild Land. The amended scheme that was approved was never advertised for public comment (unique amongst wind farms at the time), the Court upheld this situation, but Ministers changed procedures immediately afterwards to ensure that all material design changes to S36 wind farms would be advertised. However, despite the controversial history, for the sake of brevity, the commentary on the case is based on the issued decision letter.

170. The reasoning in the decision letter relies heavily on the submitted EIA Information even although that was not in respect of the consented development. It was accepted that there would still be significant landscape and visual effects after the proposed reduction of the scale of the scheme. Considerable weight was placed on the development being in "a bowl". Wild Land is addressed as a separate topic in the decision letter given the objections by SNH, the CNPA, and the JMT. SNH specifically asserted that the then Monadhliath Search Area for Wild Land would no longer be considered wild land. Despite these objections the decision letter states that the site is not an area of "pristine wild land" basically because of the

Glen Doe hydro scheme. In the end Ministers decided that because of the considerable renewable energy and economic benefits of "this large development" the impact on Wild Land did not warrant refusal of consent. The reasoning was challenged but the Judicial Review never really got to grips with the minimal way in which the scheme was assessed by Ministers and whether the references to Glen Doe were appropriate or not. Despite what was set out in the decision letter, the outcome was the loss of a significant amount of Wild Land and the creation of two WLA's with a gap between them that contained Stronelairg.

171. The Glenshero S36 wind farm proposal (which largely undoes the mitigation secured by the reductions in the Stronelairg scheme) would have significant adverse effects on both WLA 20 and WLA 19. That application is currently with Minsters for determination following the holding of a Public Local Inquiry.

WLA 24

172. This WLA is likely to come under significant wind farm development pressure in the near future as a result of a series of S36 wind farm applications, still mostly at the scoping stage, but with the Bhlaraidh Extension application having been recently submitted as an application to the Energy Consents Unit (ECU)[38]. These applications will add to an existing cluster that has emerged west of Invergarry.

173. The Millennium South S36 wind farm extension was submitted in May 2014, objected to by the Highland Council, and approved in February 2017 in line with the recommendations of an Inquiry Reporter (Inquiry Report date June 2016). The Landscape Visual Impact Assessment (LVIA) evidence and section of the report appear to have entirely focussed on Landscape Character Types (LCTs), the Council's Special Landscape Areas, and on viewpoint assessment with no mention of WLA effects at all. The Reporter felt that there would be little in the way of significant adverse landscape and visual effects beyond a small area around the site itself. This complex now consists of Millennium 1, 2 and 3 and the Millennium South wind farms.

[38] The Energy Consents Unit is the section of the Scottish Government that administers and decides major wind farm applications.

174. The Beinneun S36 wind farm complex is the other part of this cluster. It consists of the original application, a Variation application, and an Extension application. The original wind farm was consented in November 2012 following a no objection response from the Highland Council. The then Mountaineering Council for Scotland (MCoS, now Mountaineering Scotland) had maintained an objection to the proposal in respect of the visibility of the turbines from nearby Munros and SAWLs. The decision letter makes a generalised and totally contradictory statement that Ministers noted that "the development will be visible from" wild land areas but considered that "important nearby wild land areas are sufficiently far away". The Variation application was consented in April 2015 to allow a very minor increase in turbine height.

175. The Extension application, for an additional 7 turbines clustered around the edge of the consented development, was consented in June 2015. The Highland Council did not object. In the report to Committee on the application, the effects on WLAs to the northwest southwest and southeast are addressed in a single six-line paragraph which simply says that the effect of these additional 7 turbines is not considered to be significant. There was no mention of cumulative effects on the WLAs.

176. It appears that potentially inconsistent decision making by the Council was an issue in the outcomes above. However, for the purposes of this study the key conclusion is that a large, multi-site complex of wind farms has been consented without the cumulative impact on the WLAs being assessed.

177. The Bhlaraidh S36 wind farm application (the site was previously known as Balmacaan) was consented in January 2014 following no objection from the Highland Council. The MCS had objected based on the effects on two NSAs and three Special Landscape Areas. The decision letter recognised the potential for adverse effects on wild land in the area but that a (minor) design change to remove turbines in the eastern part of the site "*will mitigate some of the effects on the landscape and thus people's perception of wildness*". There was virtually no assessment of cumulative effects within the decision letter.

178. The Achany wind farm planning application, for 23 turbines on a site immediately to the east of this WLA was submitted in October 2005. It was refused planning permission by the Council and went to appeal. It was granted permission on appeal but, unfortunately, the documents are all archived on the Scottish Government Planning and Environmental Appeals Division (DPEA) web site and are not available for analysis. The wind farm was constructed, and its effects can be easily seen.

179. Some 4.5km to the west of Achany was the site of the Glencassley S36 wind farm application (23 turbines at 126.5m to blade tip) submitted in July 2012. The Highland Council did not object to the proposal. However, Ministers refused consent in November 2015 without first calling a Public Inquiry. The decision letter is the only document still available on the ECU web site.

180. SNH had objected on the basis of the effects on Wild Land. Ministers also consulted with interested parties after the publication of SPP2 and the WLA maps seeking views on the amended policies on Wild Land and NSAs. The landscape and visual impacts and the impacts on Wild Land were two of the key determining issues. Although it was proposed to remove three turbines from the scheme, Ministers concluded that the remaining significant impacts on Wild Land would not be compatible with policy. In terms of addressing Wild Land, it was noted that the area was originally identified in 2002 as a SAWL. Having considered the advice of SNH, Ministers concluded the development would have significant adverse effects on the southeastern segment of the WLA to the degree that this area of the WLA would no longer be considered Wild Land. Interestingly the letter accepts that the Achany (and Rosehall) wind farms had caused some peripheral attrition of the SAWL but that this did not change Ministers' conclusions. The relevant section of the decision letter concluded that the Wild Land impacts are unacceptable and cannot be mitigated. The decision letter also found unacceptable impacts on the NSA. These effects were not outweighed by the benefits of the proposal and consent was refused.

181. Similar considerations applied in respect of the Sallachy S36 wind farm proposal (22 turbines at 125m to blade tip) which lay to the northwest of Glencassley. The

application was submitted in December 2011 and refused consent in November 2015 (on the same day that Glencassley was refused). Again, the Highland Council did not object to the proposal and Ministers, as with Glencassley, reconsulted parties after the publication of SPP2 and the WLA maps. The bulk of the decision letter mirrored the reasoning in the Glencassley decision letter but with an expanded emphasis on the adverse effects on the Assynt – Coigach NSA (as the site was nearer to the NSA). Ministers concluded that the impacts of the proposed development would adversely affect the integrity of the NSA. The letter concluded that the impacts on the NSA and on Wild Land were not acceptable and were not outweighed by the benefits of proposal. Consent was refused.

182. More recently SSE have resubmitted an amended version of the Glencassley scheme this time called the Achany Extension S36 wind farm application. This is now for 20 turbines at a blade tip height of 149.9m. Despite the planning history of the previous proposal, the Highland Council Planning Officers recommended no objection to the application subject to the deletion of two turbines (similar to what was proposed in the rejected application). On Wild Land the planning officers consider that the development is acceptable because it is relatively contained. NatureScot, in contrast, have submitted a national interest objection on account of the effects on the WLA. The Council's North Planning Applications Committee approved the recommendation with effectively no debate and no consideration whatsoever of the important policy issues that are raised. This case will return to Ministers, and, in due course, it will be seen if they will continue to protect this WLA as they have done in the past.

183. There is also a recent Sallachy 2 wind farm planning application for 9 turbines. The determination of this will lie fully with the Council and there must a be a risk that they will approve it, irrespective of the outcome the Council's inconsistency in terms of responding to wind farms that affect WLAs will continue (see later).

4.9 Conclusions

184. Generally, the case study decision making by Ministers shows that there has been recognition of adverse effects on Wild Land and with some resultant effort to protect some of the mapped WLAs. However, it is considered that the decision making for the schemes considered above within WLA 24 did not adequately

assess cumulative effects as a large wind farm cluster emerged. It is considered significant that the Council has not consistently sought to protect WLAs.

185. An interesting aspect of the above cases that have been considered is that none of the decisions addressed the specific question of precisely how much of the Wild Land Area would be lost in the event that the wind farm was implemented although the Glencassley and Sallachy decisions did refer to (unspecified) areas no longer being Wild Land. That is despite the WLAs being a mapped based designation, resulting in boundaries to the areas, and whose map based methodological derivation was specifically required to be repeatable. Possibly the core reason for this is that SNH/NatureScot backed off any remapping of the loss/reduction of the identified WLAs, instead preferring to subjectively address the effects of proposals on identified qualities of the respective WLAs. This was despite some objectors in some cases presenting detailed mapped effects on the extent of the designated areas using the original objective, quantitative and analytical approaches that had been used to map the WLAs in 2014. This alternative approach could show how multiple wind farm developments at differing stages in the application/implementation process could affect the same WLA. Although the cumulative position was not particularly complex, in some of the earlier case studies it is entirely unclear how the subjective professional opinion approach considering qualities can possibly "compute" and articulate the more usual situation of effects from multiple wind farms – with differing wind farm designs and turbine heights, at differing stages in the development process, and at differing distances from the relevant WLA.

186. However, in the very recent response to the Sallachy wind farm planning application (located within WLA 34) NatureScot did specifically refer to the percentage land loss for the first time, so far as is known, in a wind farm case. This is seen as highly significant.

187. The case studies considered reflect the key planning history issues for the four study WLAs that were selected. They show a degree of success, so far, in mostly protecting the WLAs from very significant harmful effects. Pending decisions might change that conclusion. However, it must also be recognised, taking a wider look at what is happening with major wind farm proposals in Scotland, that there are some Wild Land Areas, such as WLA 39 (East Halladale Flows) and WLA 1

(Merrick) that are close to being surrounded by wind farms that have been built or consented or proposed. It must also be remembered that Ministers consented the Creag Riabhach wind farm which had turbines within a WLA.

188. In addition, within the Highlands, there is a worrying inconsistency in assessment and decision making by Officers and Councillors. Taking WLA 39 as an example the Officers and the Council has:

- Objected to the relatively small Limekiln Extension proposal (that has the consented Limekiln wind farm between it and the WLA);
- Did not object to the very significant height increase in the Limekiln Variation S36C application for the very large wind farm abutting the eastern boundary of the WLA;
- Refused planning permission for the quite small Drum Hollistan 2 wind farm application on the west side of the WLA;
- Objected to the Strathy Wood S36 application (but with their assessment subsequently being rejected by a Reporter); and
- Did not object to the 39 x 200m tall Strathy South Variation application immediately adjoining the Strathy Wood site (with Ministers accepting that assessment despite it being very similar to the rejected Strathy Wood assessment).

189. The above approach to decision making introduces uncertainties into the future that need to be factored into the future actions.

5. Conclusions

5.1 Overall Mapping Conclusions

190. The main conclusion that can be drawn from the mapping and spatial analysis are that impacts from development over the years has significantly impacted on the remaining areas of wild land in the case study WLAs. Impacts are principally from road (and rail) building and improvements and bulldozed vehicle tracks, which reduce remoteness by providing easier and quicker access to remote wild land areas, and new modern human artefacts in the landscape that have a marked visual impact and a corresponding reduction in wild land quality as a result.

191. Forms of visual intrusion have changed over the period mapped and have tended to go in phases starting with road and rail and more recently seeing phases of development in renewable energy, first hydro power in the 50s and 60s, more recently wind energy in the last 20+ years and now small-scale run-of-river schemes. Plantation forestry with its associated vehicle tracks has also moved in phases but at different rates throughout the period of analysis depending on location. There has also been an increasing network of hiking paths.

192. The rate at which wild land is being lost is sporadic but significant, with rates increasingly significantly during periods of development as remoteness and areas without visual impact from modern human artefacts are reduced.

193. The overall rate of loss appears to be increasing as the scale of development increases from roads and rail to plantation forest, and from hydro schemes to industrial wind farms. This is evident from the trends seen in Figure 3.18 which show clear increasingly rapid attrition in more recent years.

194. It is clear from recent mapping work that renewable energy developments – hydro in the 50s and 60s, wind energy since 2005, run-of-river hydro from *ca.* 2000 – has had a significant impact on qualities of wild land in more recent years. While we need as a nation to reduce our dependence on fossil fuels for energy by realising Scotland's vast renewable energy wealth, this does not come without cost to Scotland's iconic and world-renowned landscapes. Wind and hydro power may be renewable, but they are not wholly "green" and have a huge impact on landscape quality over the large areas from where they are visible and have more local

ecological impacts in terms of effects on soils, hydrology and wildlife. This is what may be termed a classic "green on green" impact.

195. It is only eight years since the definition and mapping of WLAs in Scotland. This makes it too soon to say whether they have had an effect on slowing the rate of loss of wild land through reductions in remoteness and visual impacts. With only six data points, deriving any meaningful assessment is difficult. Nonetheless, long term and short-term rates of attrition, if extrapolated, would indicate continued threat to the remaining areas of unimpacted, remote wildland. Whether this means that there will be some future point at which all wild land ceases to exist is open to question.

5.2 Overall Planning Conclusions

196. It might be said that, in theory, the only policy provisions that have prevented further loss of Wild Land have been the provisions of Scottish Planning Policy (SPP2) to the effect that commercial wind farms are banned from National Parks and National Scenic Areas (even if the Planning profession has never faced up to the intrinsic intellectual challenge that if wind farms are banned in some precious landscapes then why are they not banned from all precious landscapes). However, the protection has not been as effective as it could have been. Large scale modern wind farms are features that can be visible from over 40km away. The designated National Parks and National Scenic Areas are, by Scottish Government dictate, not protected by buffer zones. Therefore, the Cairngorms National Park was not protected from the adverse effects of the Dorenell S36 wind farm some of whose turbines are so close to the park boundary that they could topple over into the Park. The more realistic conclusion that can be reached for the National Parks and National Scenic Areas is that the application of national planning policy means that they have avoided having wind farms within their boundaries, but they have not been protected from the harmful landscape and visual effects of wind farms.

197. Otherwise, all other aspects of national policy are subject to the interpretation of policy text and the application of planning judgement by the decision maker when reaching the planning balance. This has been endorsed by the Court of Session decisions in Scotland.

198. This decision-making approach by Scottish Ministers (on S36 Electricity Act wind farms) has led to some very challenging and in many ways unsupportable outcomes. For example, as noted, Stronelairg was consented (without any Public Inquiry) just a few days before the 2014 WLA map and advice was published. As a consequence, the very large Core Areas of Wild Land (CAWL) area 17 was split into two WLAs (19 and 20) with a large gap between them. However, the mapped evidence presented at the subsequent Allt Duine S36 wind farm Public Inquiry (on the northern boundary of WLA 19) showed that scheme as having far less effect on Wild Land than Stronelairg. It also showed that the effects of Stronelairg on the extent of Wild Land had been grossly underassessed (assuming that there was any assessment at all). Despite this, and despite the Inquiry Reporter recommending approval, Allt Duine was refused consent by Ministers *inter alia* on account of the effects on Wild Land.

199. At a local level, within the Highland Council, the application of policy and guidance over the last fifteen years has not produced a consistent pattern of policy based or policy driven determinations of wind farms. The text of Policy 67 is too vague, meaning that differing people will have differing conclusions on whether or not policy compliance is achieved by a wind farm proposal. The latest guidance, the Onshore wind energy: supplementary guidance (OWESG) document, although forming part of the statutory Development Plan, is not something that either officers or decision makers have been willing to take on its clearly stated terms (whilst recognising that there has been debate around whether it introduces policy tests that are not in Highland-wide Local Development Plan (HWLDP) Policy 67). For example, for the location of the Druim Ba wind farm, the relevant text in the Adopted OWESG says that the landscape has “no capacity” for commercial scale wind farms. The wording used, in plain English terms, could not be clearer. Yet the case Reporter (who did reject the proposal) stated that the wording would not prevent him from granting planning permission if he felt that it had been appropriate to do so.

200. Also at local level, the fate of wind farm cases has often turned on whether or not an individual planning case officer finds the development to be acceptable or not in the recommendations to Committee. Again, there is a high degree of individual and often inconsistent professional judgement involved here and, although this

will be difficult for the Council to accept, a historic review of all wind farm cases would suggest that some officers have been more positively predisposed towards wind farms than others. Some officers have, equally, had a change of heart as they have looked at the landscape, visual and community effects of constructed wind farms. There have also been periods when the Planning Committees have consistently rejected the advice of officers and have objected to or refused permission for the proposals. The key outcome of this aspect is that it is highly difficult for advisors, whether acting for or against a wind farm proposal, to advise their clients with any degree of certainty at all as to how an application will be viewed within the Council.

201. In terms of the implemented, consented, and proposed developments (principally wind farms) affecting the four WLA study areas, the conclusions that can be reached, irrespective of whether schemes were approved or rejected are clear:

- There has been no Development Plan led and directed consistent assessment framework for decision making, and at the Highland Council level there has never been any specific HWLDP map-based policy and/or supplementary guidance to afford significant protection to Wild Land Areas;
- Effectively there has been no positive Council led land use planning for wind energy;
- Rather, each application has been an entirely locationally specific proposal (largely driven by there being a willing landowner) followed by an individual project recommendation and/or decision often taken by someone with no democratic accountability to the locality;
- The result is completely random decision making in respect of wind farms; and
- This non Plan led speculative application and decision-making process lies at the heart of the significant disagreements between interested parties and within communities when individual projects are considered.

202. The above conclusions, especially the first three points, are in stark contrast with the conclusions that would be reached in looking at almost any other form of major land use developments in Scotland.

5.3 Summary

203. In summary, the recent and current planning policy provisions at national and local level have not prevented the continuing attritional loss of Wild Land whilst wind farm applications continue to be random, speculative proposals that are followed by often inconsistent decision making that is characterised by one person's views in each case. There is an absence of positive and consistent Plan led planning.

5.4 Recommendations

204. Drawing all of the above planning assessment together and giving careful consideration to the mapped GIS datasets, three main conclusions are clear especially in the context of the stated Scottish Government aspiration of a significant increase in onshore wind farms.

205. Those conclusions are that if the WLAs and other wild and precious land is to be seen as a national level resource to be protected and managed positively for passing on to future generations then three things need to happen:

- The decisions on the location of generating plant, and all of the ancillary directly associated onsite and offsite facilities, needs to be a Development Plan (NPF 4 and LDP) led and directed process (as it is currently in England) that identifies preferred wind farm locations;
- That process has to be driven by local democracy, community and place, the concepts that fundamentally underpin every other aspect of the statutory land use planning system in Scotland; and
- Within that process, landscape protection, planning and management policy, at national and local level, has to set out a map-based framework that identifies the National Parks, the NSAs, the WLA's **and their settings** with an associated ban on commercial scale wind farms so as to consistently and predictably deliver the required degree of protection from harm.

206. It is recognised that this will probably need legislative change in order to modify the procedures for Electricity Act applications. In the longer term, the Wild Land

Areas need to be given a stronger legal underpinning so that attrition of their special qualities no longer takes place. In particular, care needs to be taken to ensure that WLAs are neither abandoned or watered down in the ongoing NPF4 consultation.

5.5 Next Stages

207. There are a few next stage actions that are suggested at this stage although these are clearly seen as matters for discussion in the context of the research study's final report.

Conference and Debate

208. It was always intended that the outcome of this research report would be discussed at a conference of interested parties. That action is now considered to be even more important given the need for a coherent and preferably multi party response to the landscape and green energy provisions in the draft NPF4.

Respond to the NPF4 Consultation

209. The research study report along with the outcome of the February event should be used to inform a detailed response to the draft of NPF4. It is suggested that this response should be submitted to the Scottish Government as soon as is practical so as to allow time for further dialogue before the consultation period ends on 31st March. As noted earlier responding to the draft NPF4 is seen as a critical action to follow up from this report.

Publicity

210. In addition to the normal media PR it is suggested that there would be very considerable value in looking to both brief individual MSPs and to also engage

directly with Scottish Ministers. We can be sure that the wind industry will be investing heavily in both of these aspects.

Appendices

Appendix 1. The Unna Principles

Approved by NTS Council 18 January 2002

APPENDIX 1

PERCY UNNA'S LETTER

23 November 1937

To the Chairman and Council of the National Trust for Scotland

Dear Sirs

As the movement initiated by a group of members of the Scottish Mountaineering Club to acquire Dalness Forest and hand it over to the National Trust for Scotland, to be held for the use of the nation, so that the public may have unrestricted access at all times, has now materialised; as subscriptions to that end were invited not only from the members of the Scottish Mountaineering Club, but also from the members of all the other mountaineering clubs in Great Britain; and as the funds so subscribed enabled the forest to be handed over free of cost to the Trust, together with a surplus to be used as an endowment fund; it is considered desirable that what are believed to be the views of the subscribers as to the future of the estate should be expressed in writing, and recorded in the minutes of the Trust. This is all the more necessary, as in the attached circular which was issued for the purpose of inviting these subscriptions it was stated that the land 'would be held on behalf of the public and preserved for their use', and 'that the Trust' would 'be asked to undertake that the land be maintained in its primitive condition for all time with unrestricted access to the public'. The views in question are -

1. That 'primitive' means not less primitive than the existing state.

2. That sheep farming and cattle grazing may continue, but that deer stalking must cease, and no sport of any kind be carried on, or sporting rights sold or let; any use of the property for sport being wholly incompatible with the intention that the public should have unrestricted access and use. It is understood, however, that deer may have to be shot, as that may be necessary to keep down numbers and so prevent damage, but for that purpose alone.

3. That the word 'unrestricted' does not exclude regulations, but implies that regulations, if any, should be limited to such as may in future be found absolutely necessary, and be in sympathy with the views expressed herein.

4. That the hills should not be made easier or safer to climb.

5. That no facilities should be introduced for mechanical transport; that paths should not be extended or improved; and that new paths should not be made.

6. That no directional or other signs, whether signposts, paint marks, cairns, or of any other kind whatsoever, should be allowed; with the exception of such signs as may be necessary to indicate that

the land is the property of the Trust, and to give effect to the requirement in the Provisional Order of 1935 that by-laws must be exhibited.

7. That should a demand spring up for hotels or hostels it is possible that it may have to be satisfied to a limited extent. If so, they should only be built alongside the public roads, and should be subject to control by the Trust; and it is suggested that no hotels or hostels should be built in Glencoe itself, or on any other part of the property, except, perhaps, in the lower reaches of the Trust property in Glen Etive. It is hoped that the Trust may be able to come to an understanding with neighbouring proprietors as to corresponding restrictions being maintained in regard to land near to that held by the Trust.

8. That no other facilities should be afforded for obtaining lodging, shelter, food or drink; and, especially, that no shelters of any kind be built on the hills.

9. It is hoped that the design of any buildings which may be necessary will be carefully considered by the Trust; and that, where possible, trees will be planted in their vicinity.

10. In conclusion, it is suggested that the whole question of the management of the Trust properties in Glen Etive and Glencoe should receive special attention, in view of the possibility that the policy adopted by the National Trust for Scotland in the present instance may create a precedent for similar areas in other mountainous districts, not only in Scotland, but also in England and Wales.

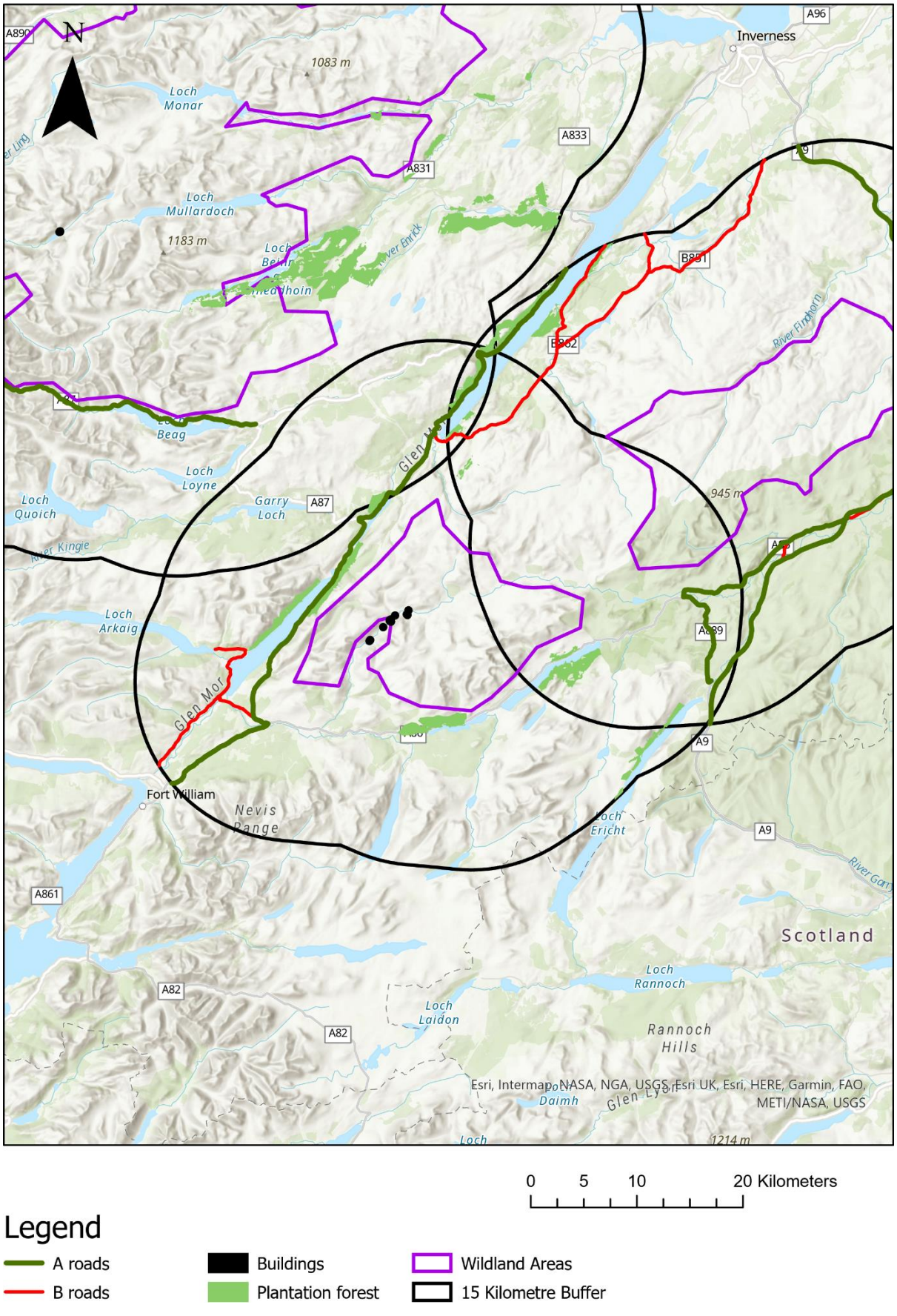
P J H Unna
President
Scottish Mountaineering Club

Appendix 2. Wild Land Attributes (After SNH, 2002)

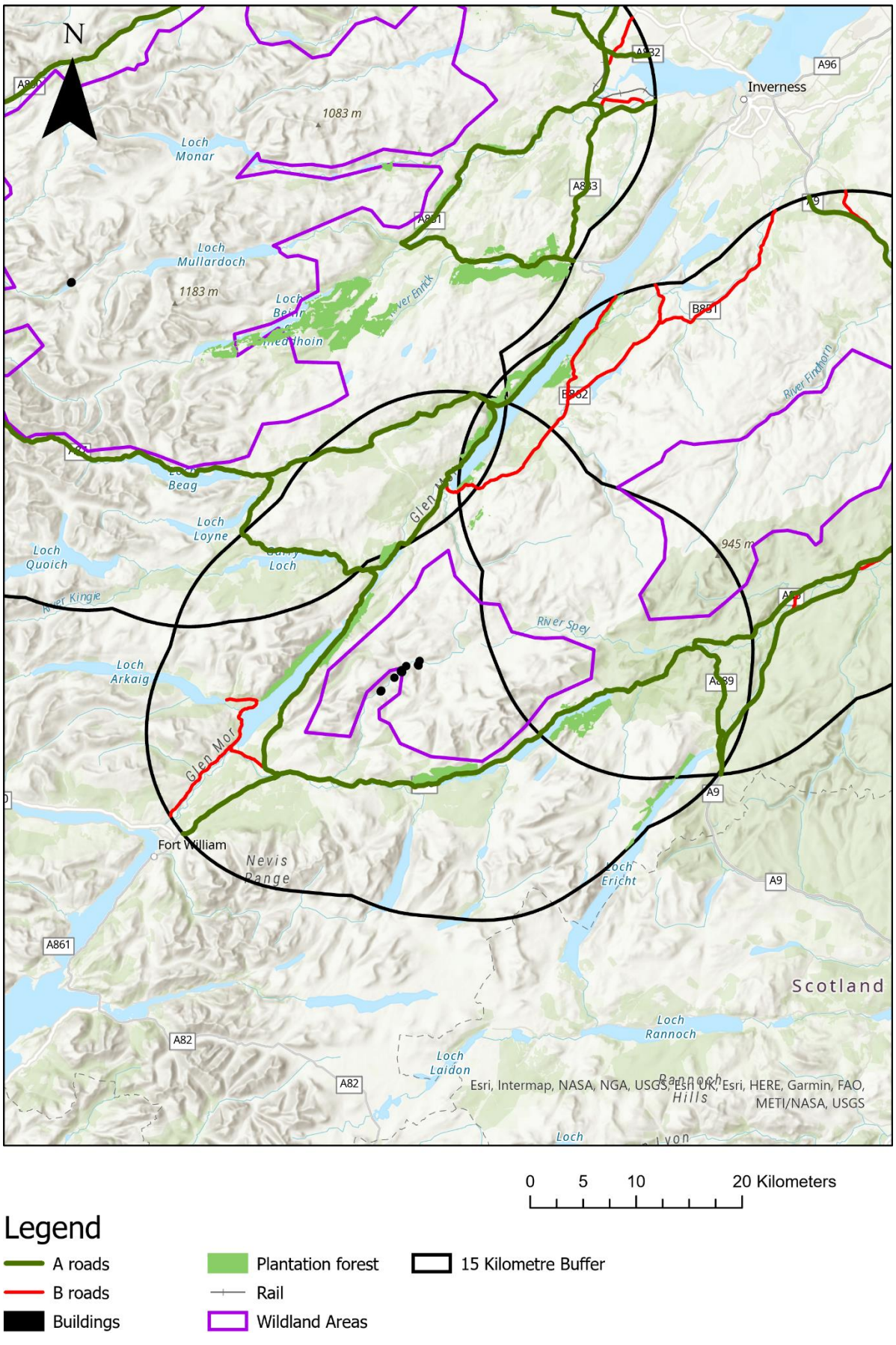
Attributes	Main Criteria	Further Interpretation of Criteria
Perceived naturalness	Vegetation cover primarily composed of functioning, natural habitats. Catchment systems largely unmodified, and other geomorphological processes unaffected by land management.	Habitat may often not be in best condition or at optimum ecological status. But there will normally be potential for recovery, and the vegetation cover should be composed of natural components. Some small plantations may be tolerated especially at the edge of an area, if they are the only detracting feature and of limited effect on wildness,
Lack of constructions or other artefacts	No contemporary or recent, built or engineering works within the area. Little impact from outwith the area on wild qualities from built development, power lines, or masts or other intensive land uses (say forestry), or from noise or light pollution. Limited effects on the wild qualities of the area from older artefacts.	Older features (fences, bridges, stalking tracks, or small buildings) may be present, if not intrusive overall. Archaeological features (normally a light imprint on the land) will contribute to visitors' appreciation of the continuity of human use of these areas. Some intrusive features (say vehicular tracks which partly penetrate into an area) may be tolerated, where their effects are limited, and where excluding such land would reject an area of high intrinsic quality.
Little evidence of contemporary land uses	Extensive range-grazing and field sports (as economic uses of the land) will often be present, as well as public recreation. Land uses of an intensive nature should not be present.	The cumulative effects of the economic uses of the land should not be intrusive. Evidence of muirburn or over-grazing, habitat management, footpath deterioration and erosion, or the effects of the use of off-road vehicles may be visible. But the effects of any one of these activities, or their cumulative expression should not be of a scale or intensity so as to significantly devalue visitors' perceptual experience.
Rugged or otherwise challenging terrain	Striking topographic features, or land having extensive rough terrain or extensive boglands, difficult to traverse.	Different kinds of terrain can offer an inspiring or challenging experience for people but, in the main, it is those landscapes which are of arresting character

Appendix 2 (cont'd)

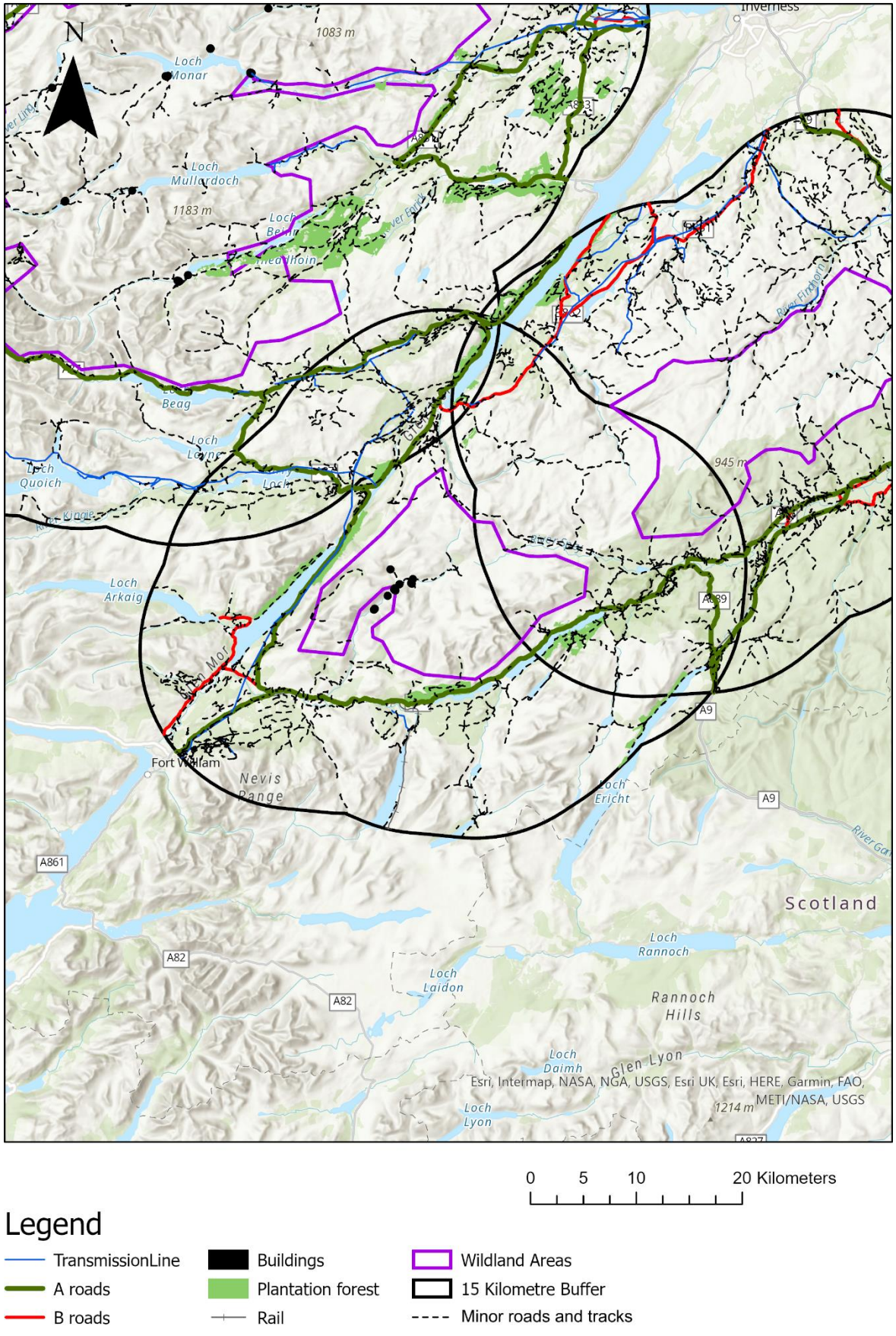
Attributes	Main Criteria	Further Interpretation of Criteria
	Natural settings for recreational activities requiring hard physical exercise or providing challenge.	(by virtue of the scale and form of the terrain) which are most valued for their wildness.
Remoteness and inaccessibility	Distance from settlements or modern communications. Limited accessibility, either by scale of the area, difficulty in passage, or the lack of easy access, say by vehicular tracks, bridges, or by boat.	Distance is not an absolute guide on its own, but most of the wild land resource will lie in the remaining remote areas, as defined by distance from private and public roads and other artefacts.
Extent of area	An area of land sufficient to engender a sense of remoteness; to provide those who visit them with physical challenge; and to allow for separation from more intensive human activities.	Smaller areas of land of high intrinsic merit or inaccessibility can hold the qualities which underpin a sense of wildness, say an inaccessible rocky gorge, and the same applies to some small uninhabited islands, or stretches of isolated coast.



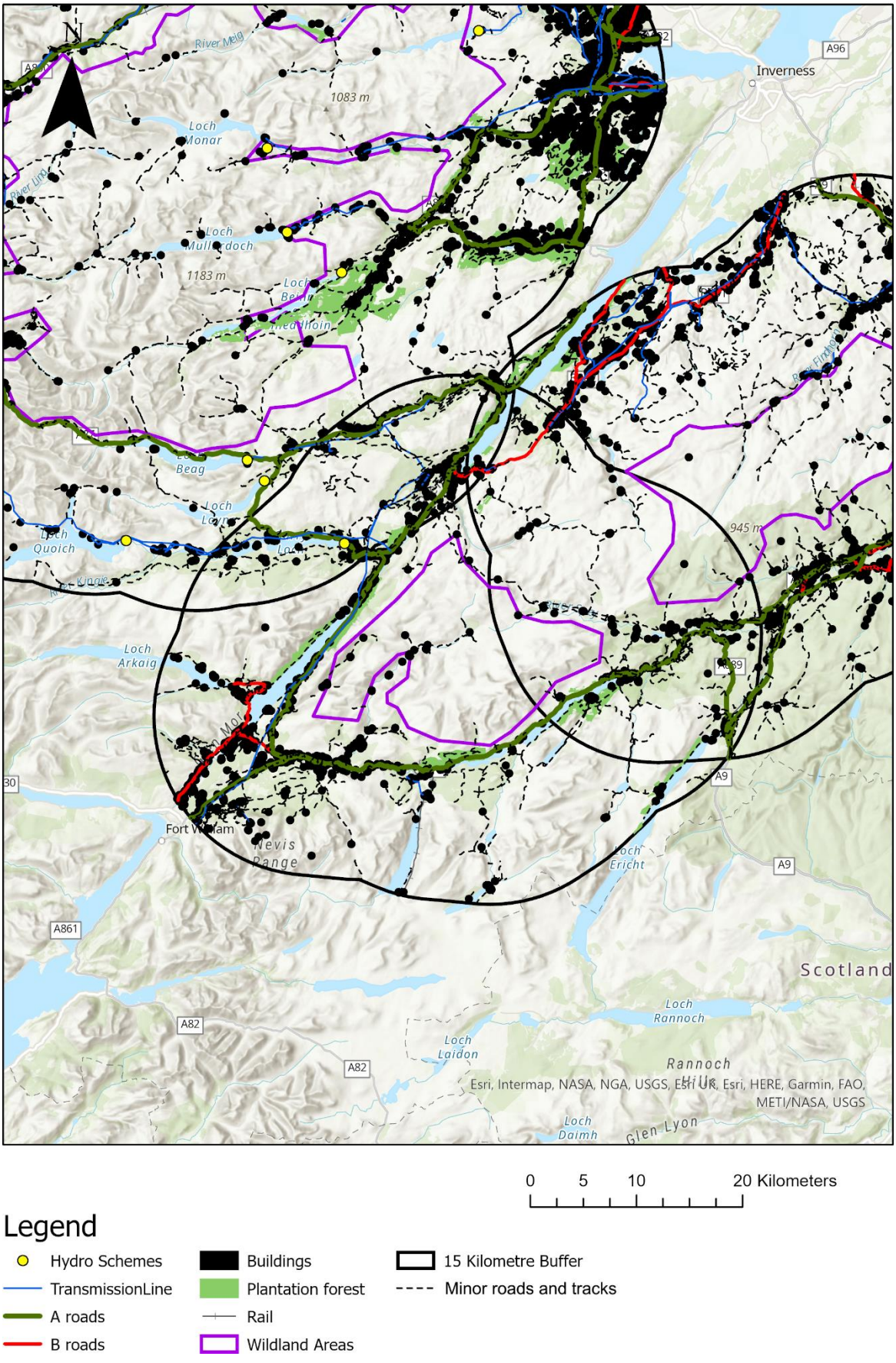
A3.1 Mapped features across WLA19 (1747)



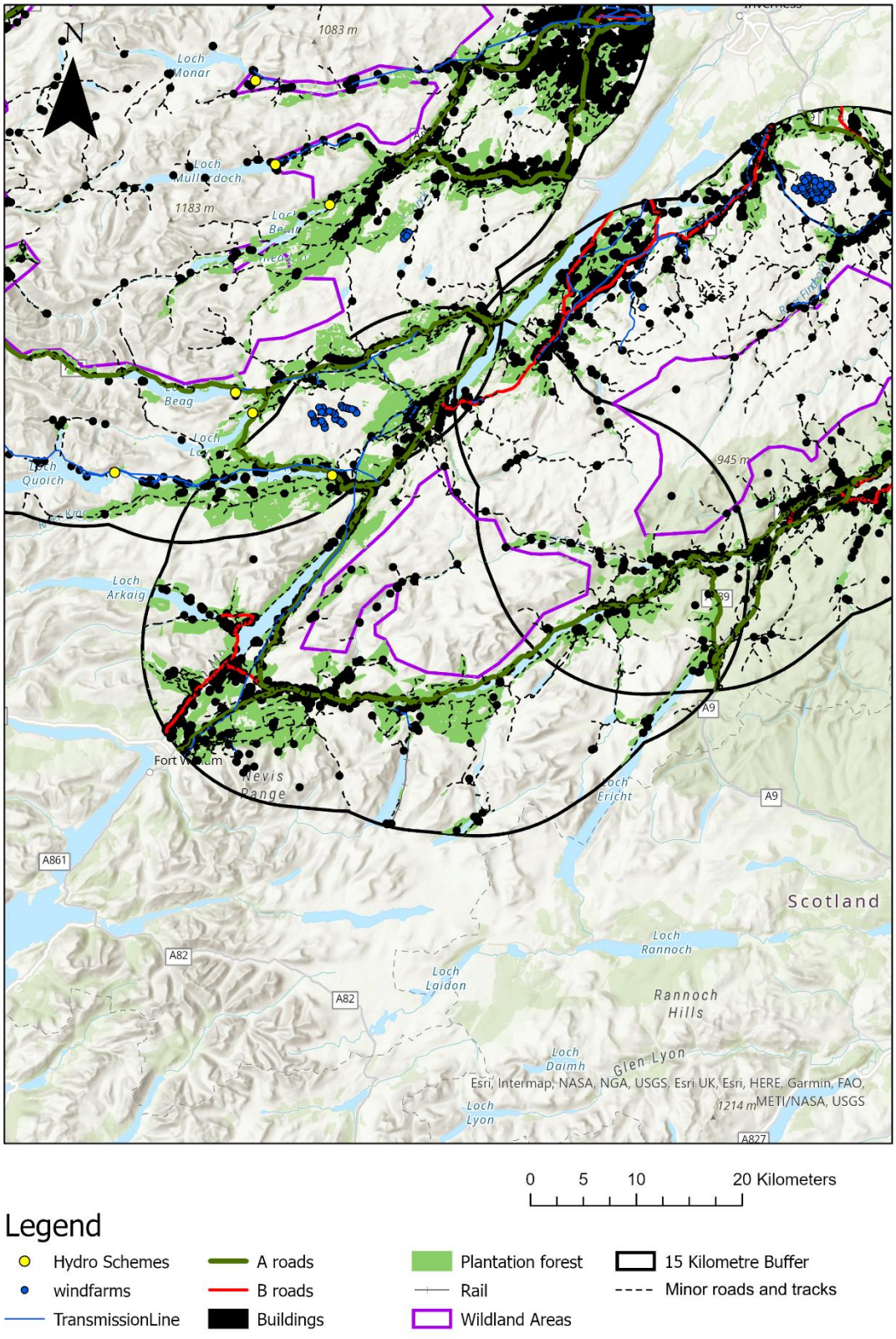
A3.2 Mapped features across WLA19 (1862)



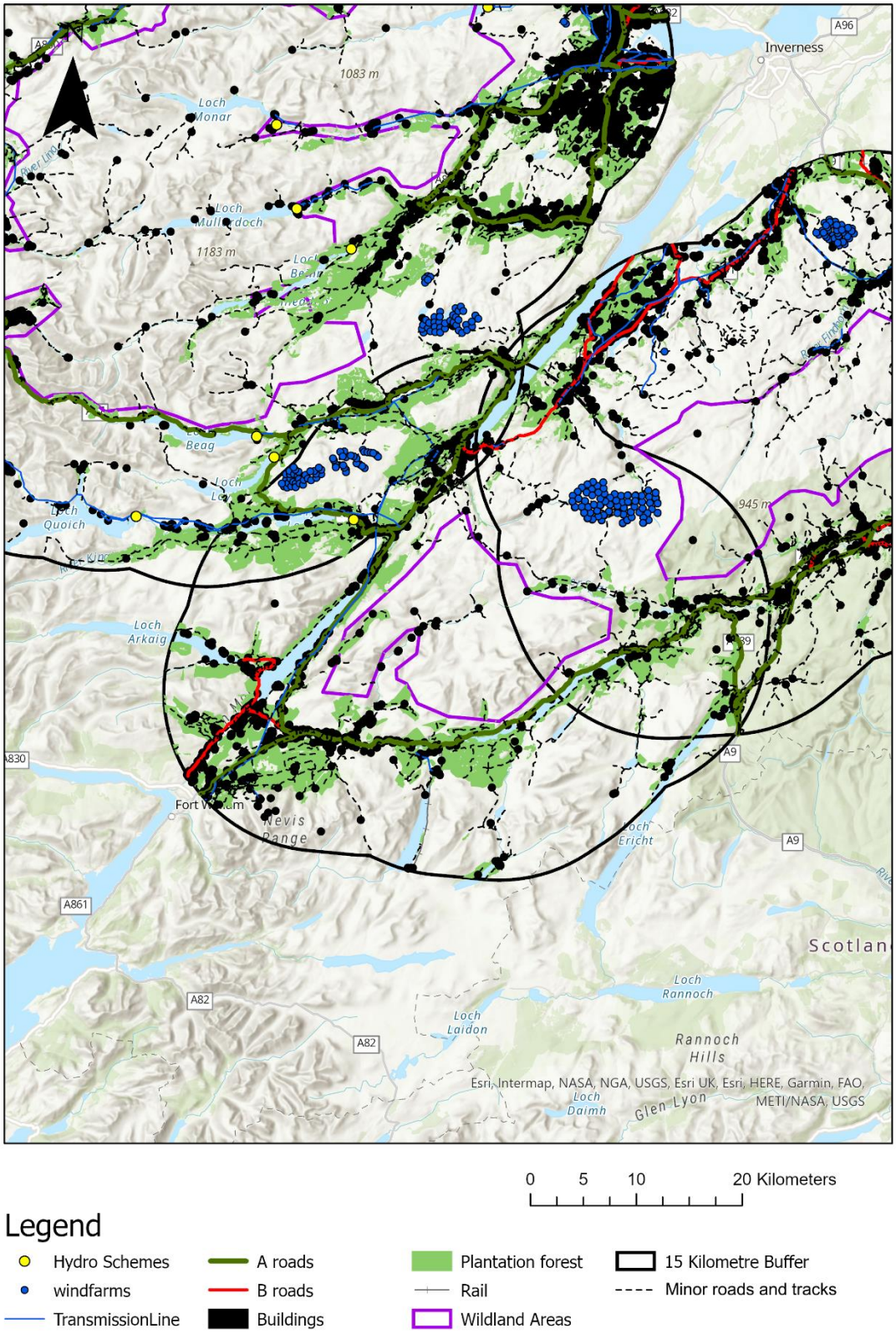
A3.3 Mapped features across WLA19 (1935)



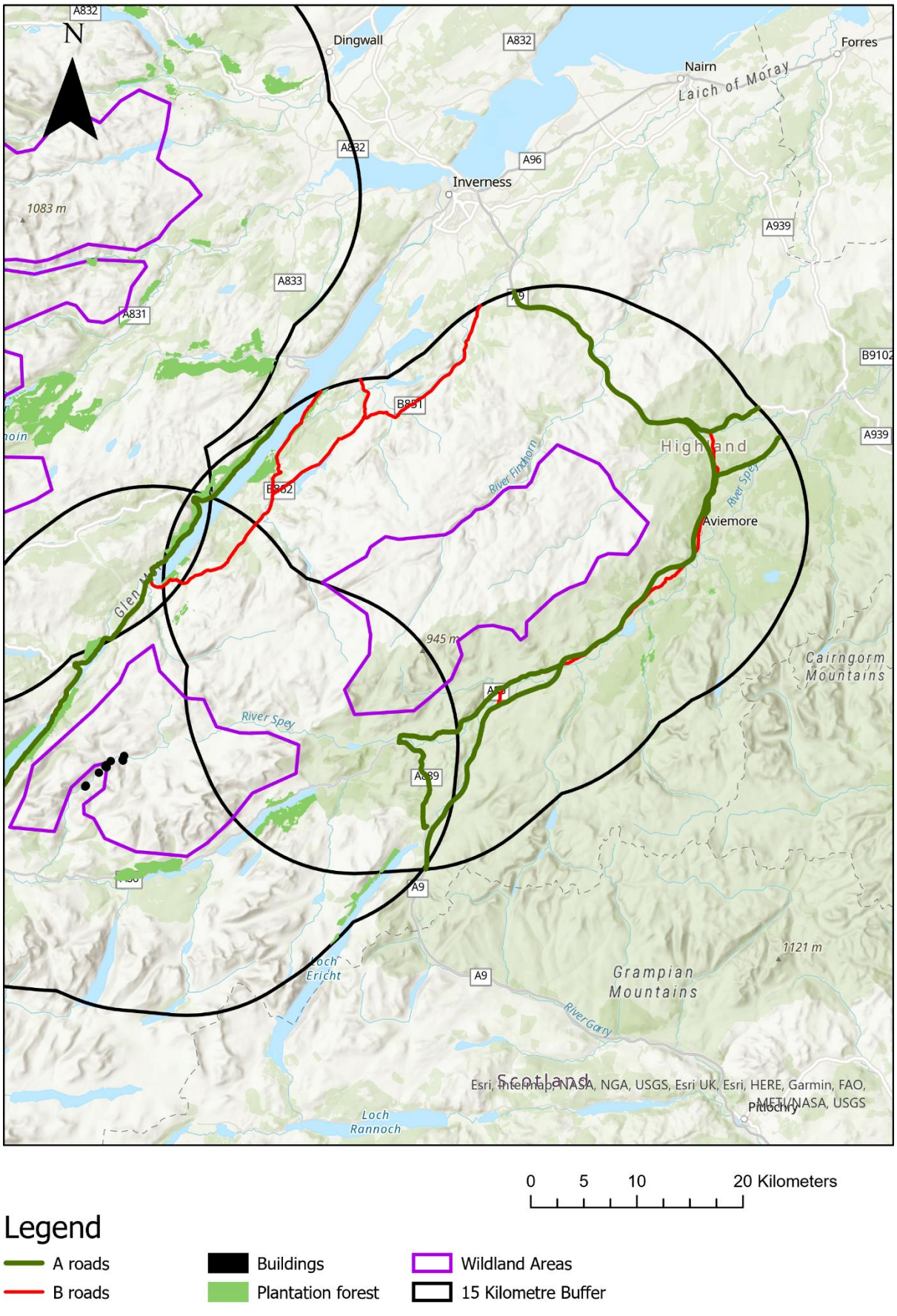
A3.4 Mapped features across WLA19 (1962)



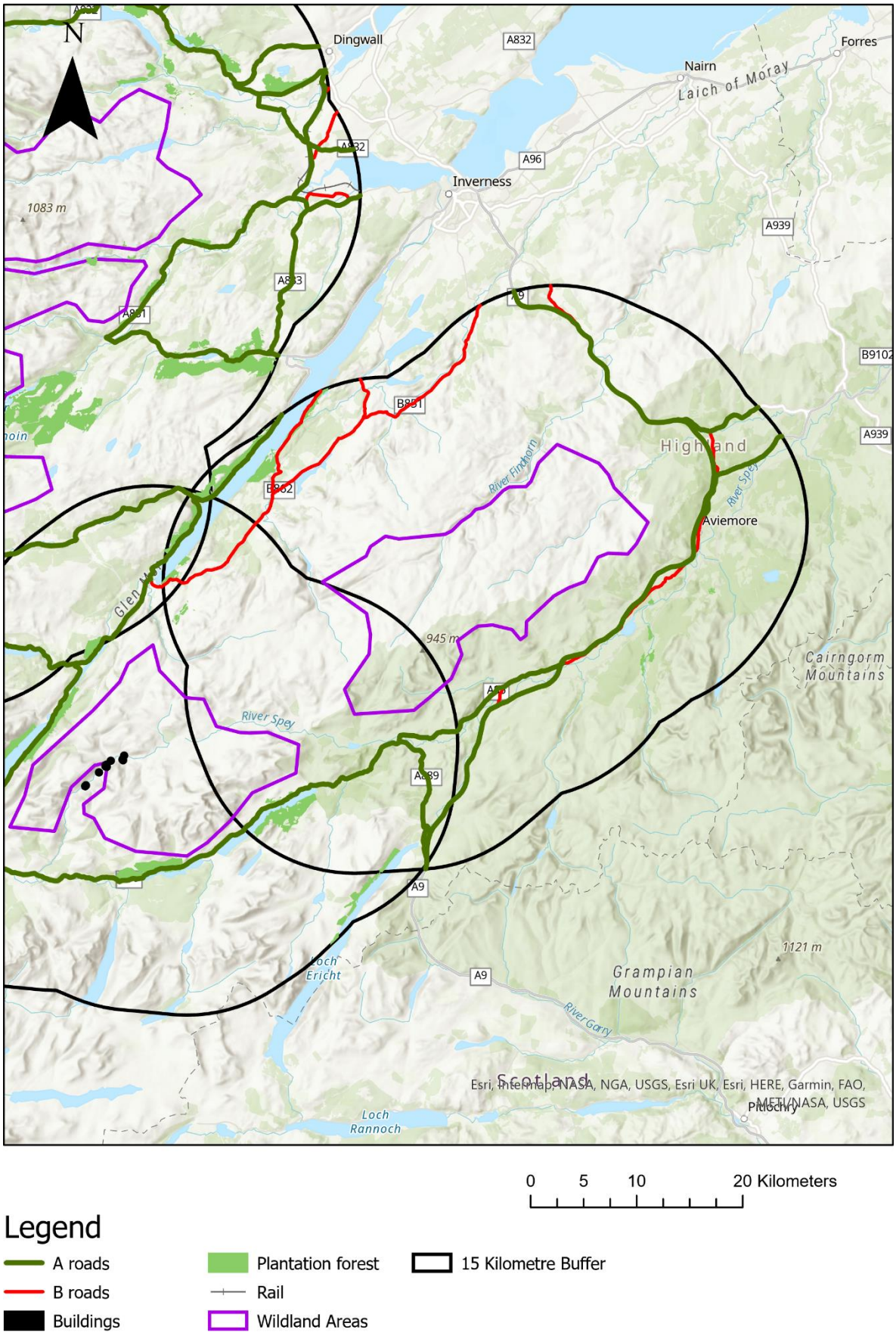
A3.5 Mapped features across WLA19 (2015)



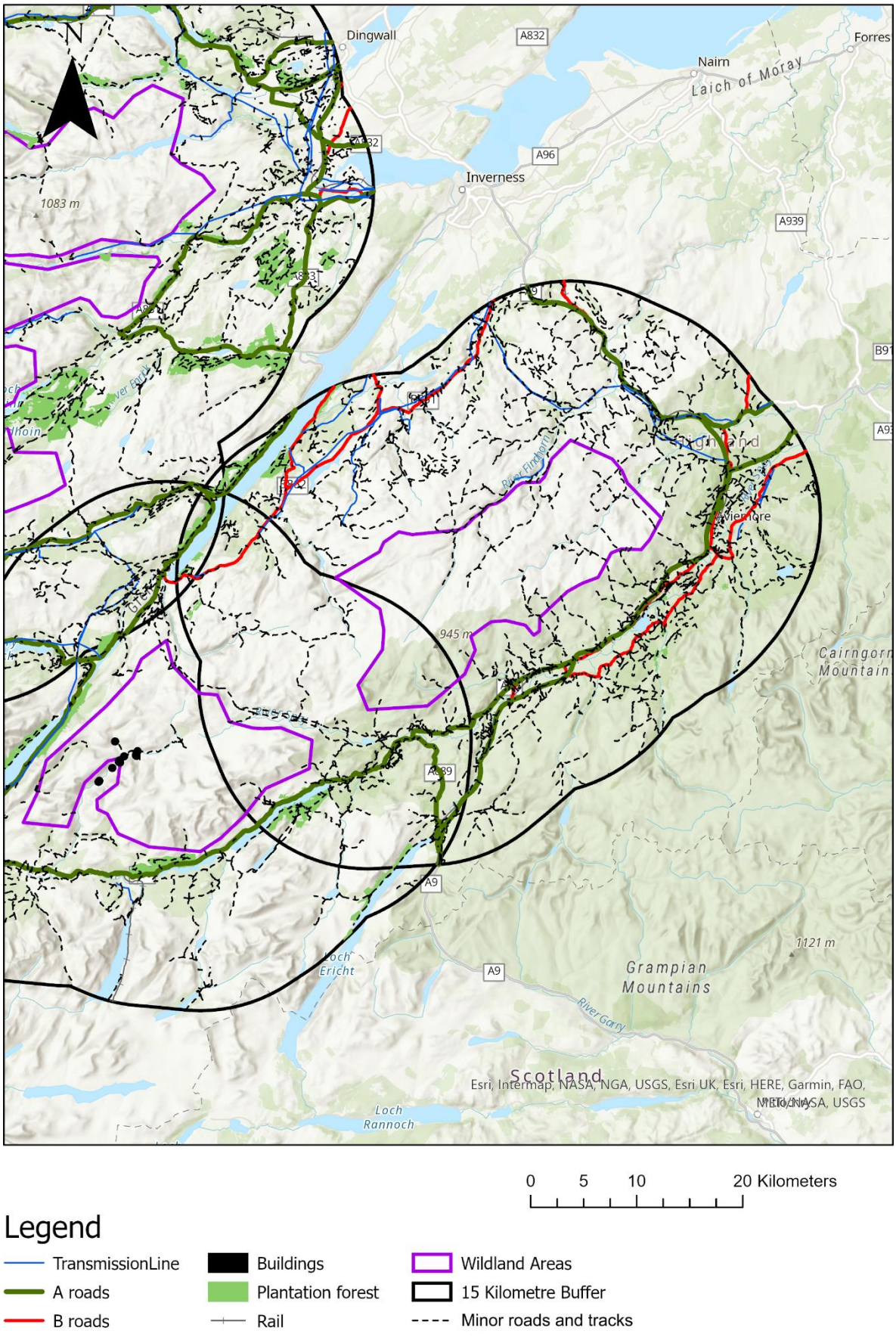
A3.6 Mapped features across WLA19 (2020)



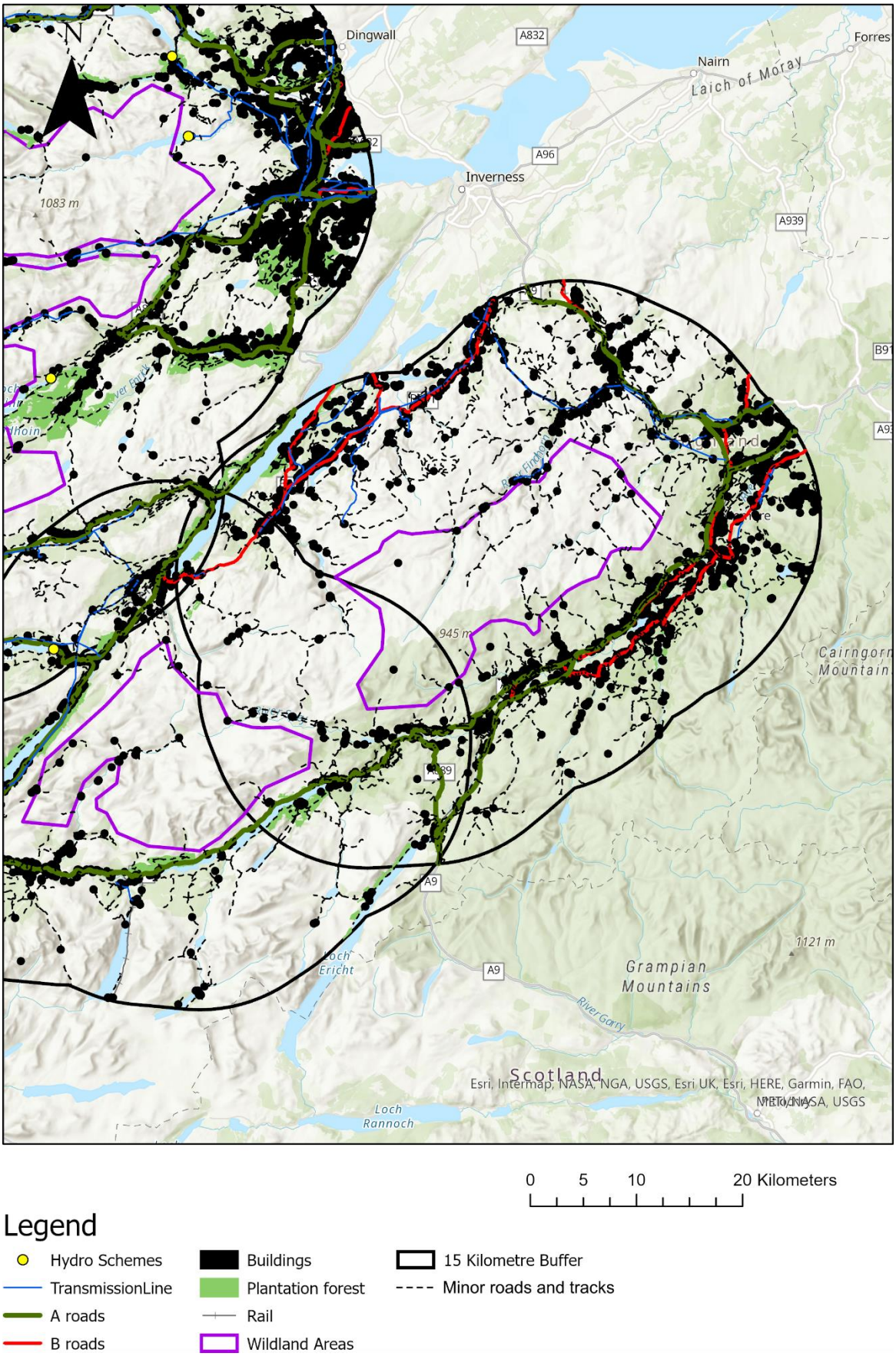
A3.7 Mapped features across WLA20 (1747)



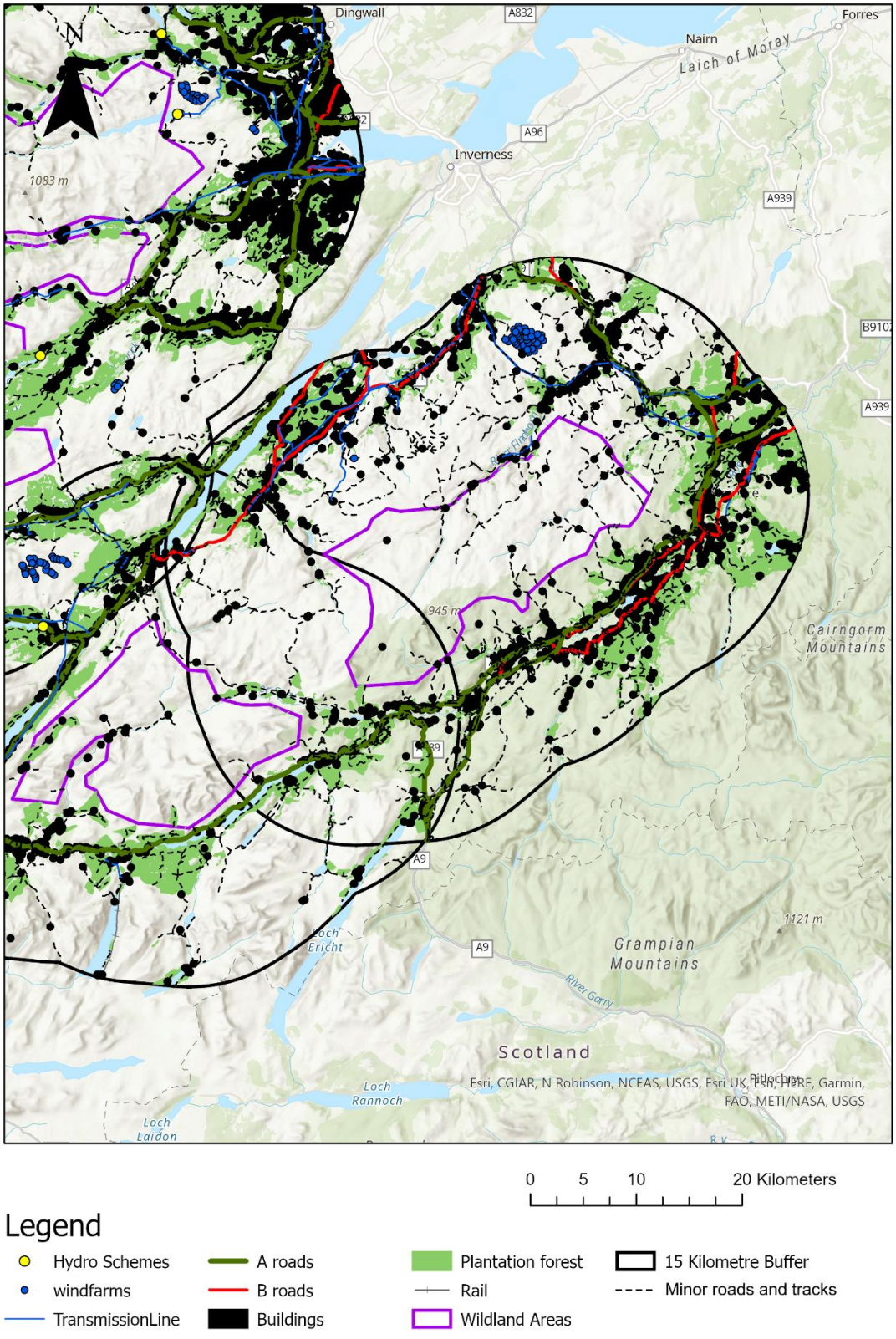
A3.8 Mapped features across WLA20 (1862)



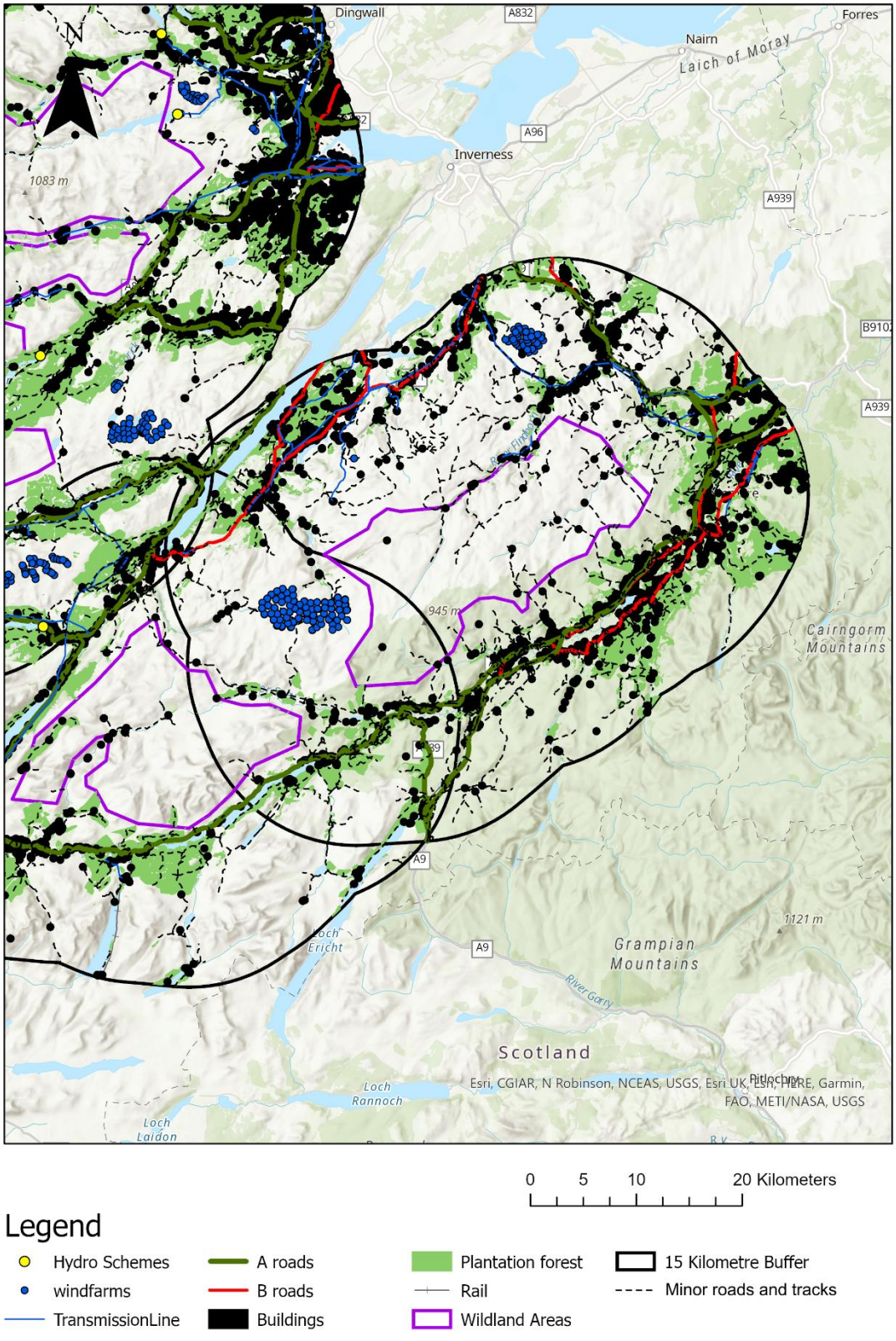
A3.9 Mapped features across WLA20 (1935)



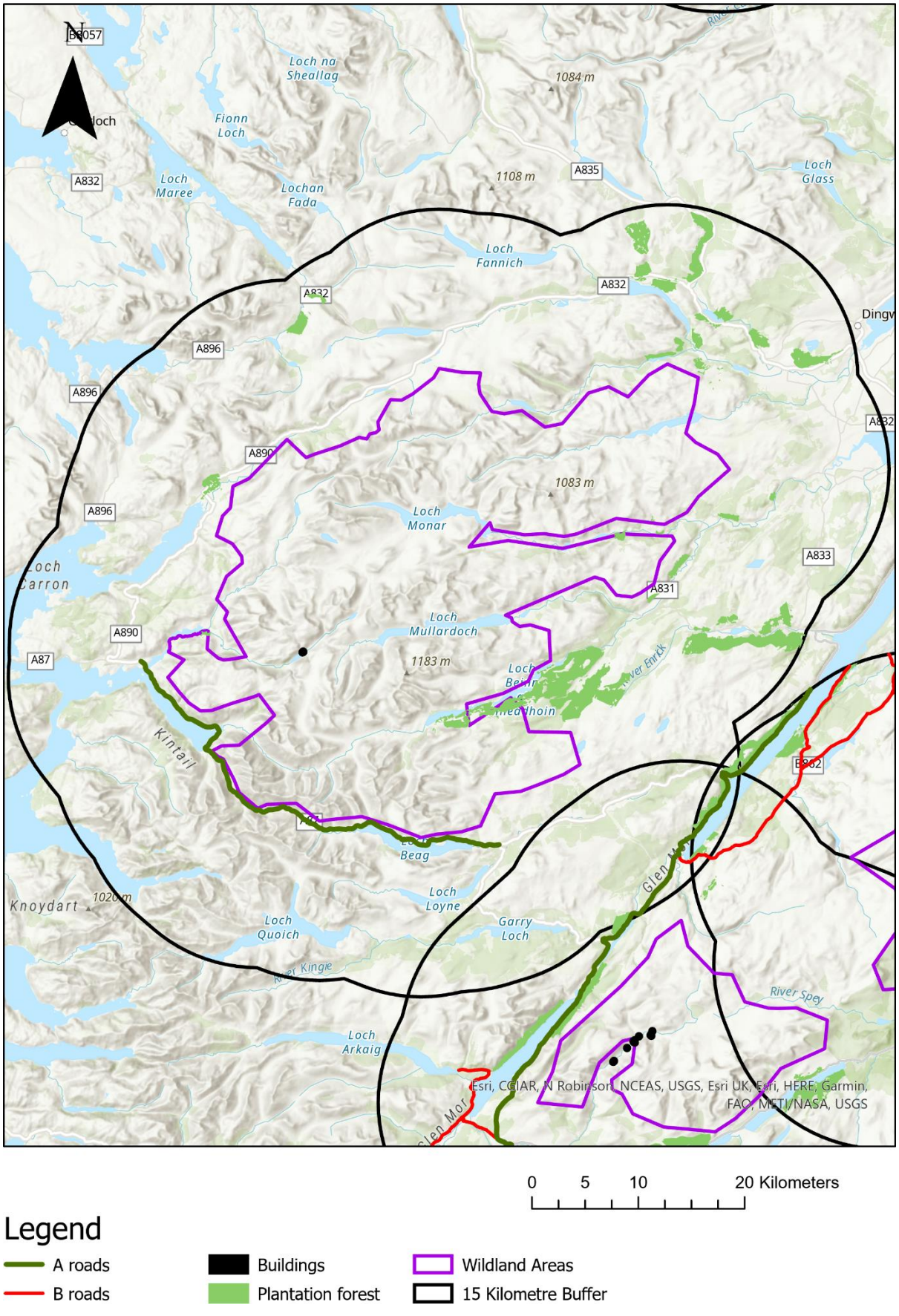
A3.10 Mapped features across WLA20 (1962)



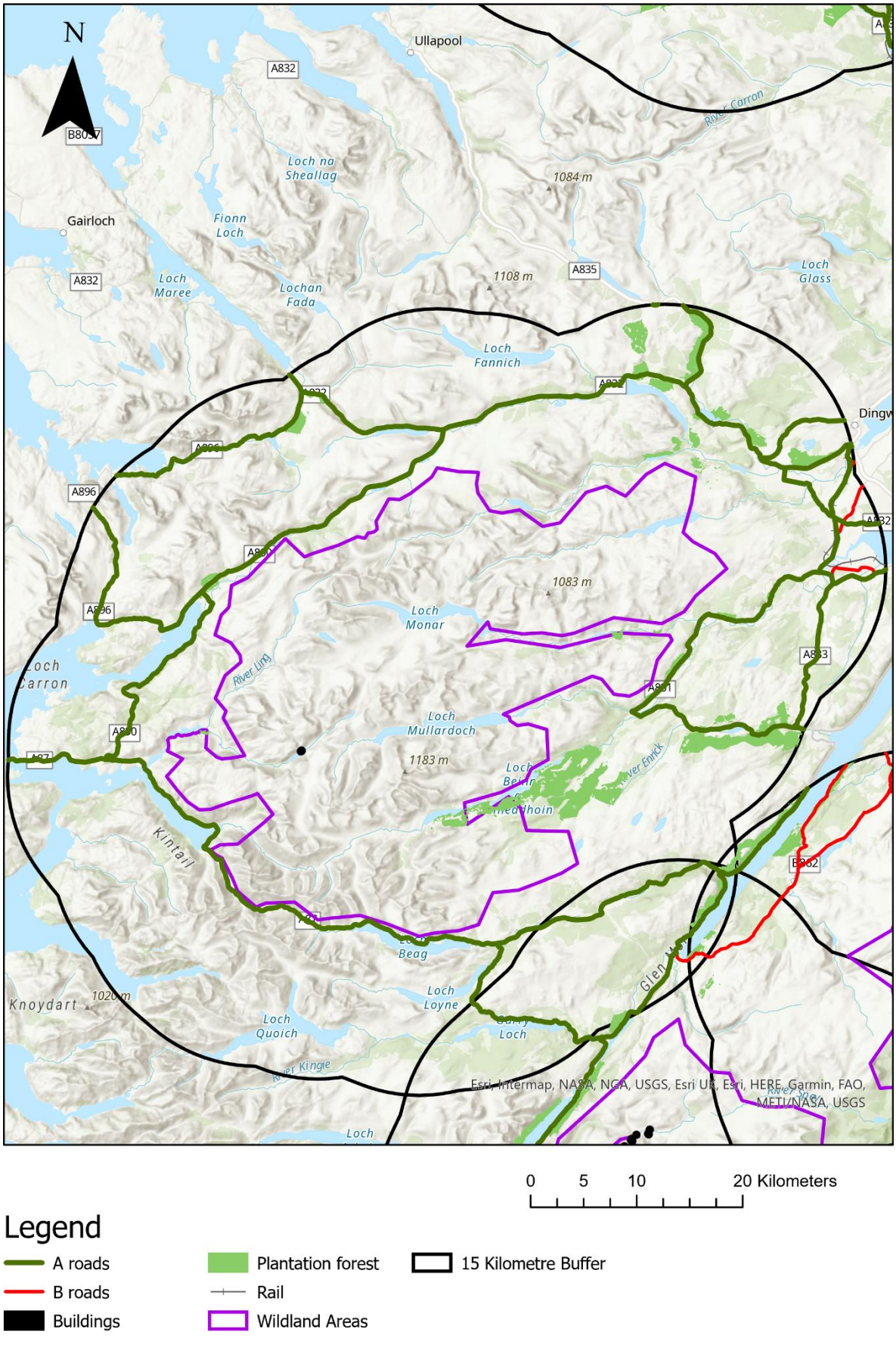
A3.11 Mapped features across WLA20 (2015)



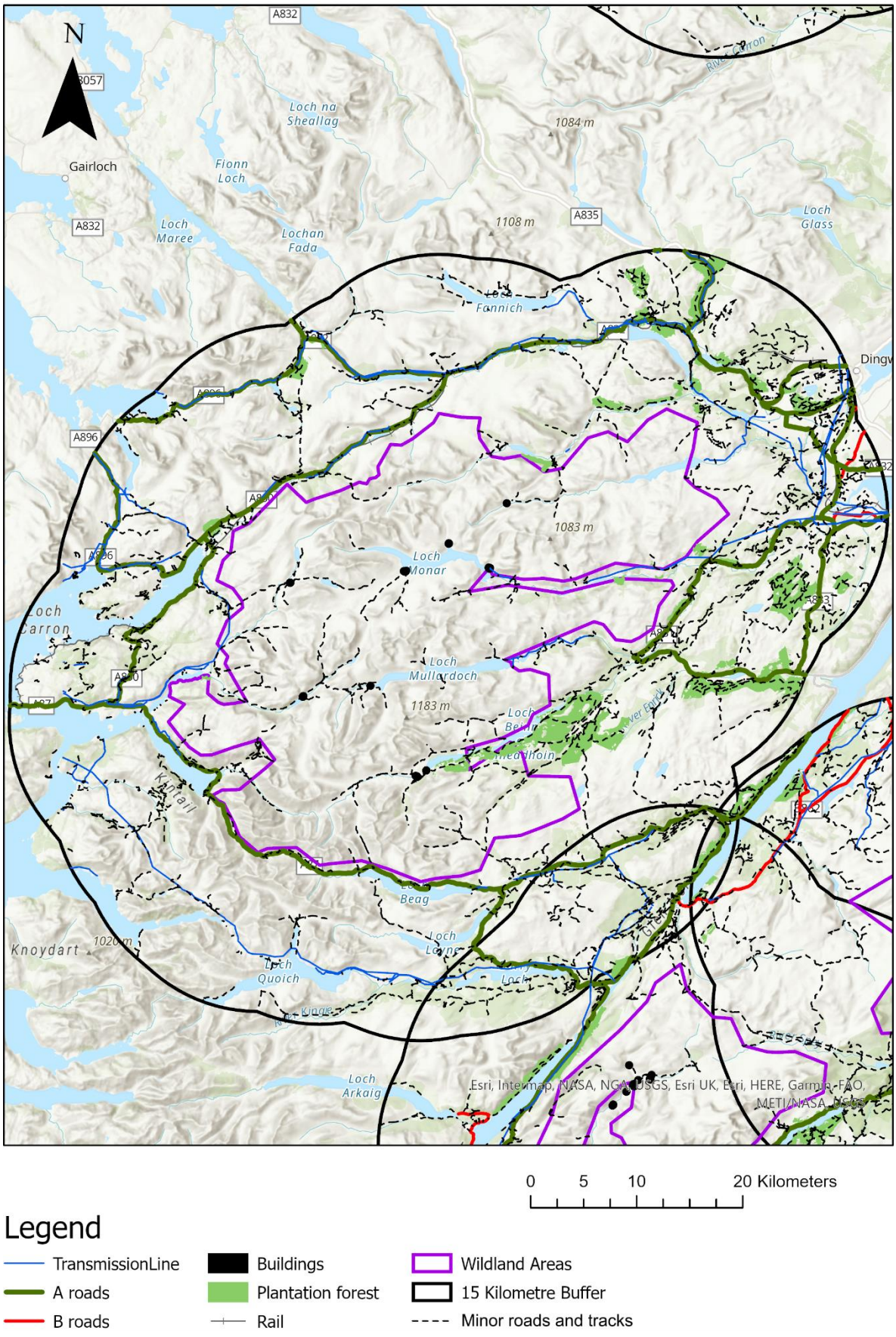
A3.12 Mapped features across WLA20 (2020)



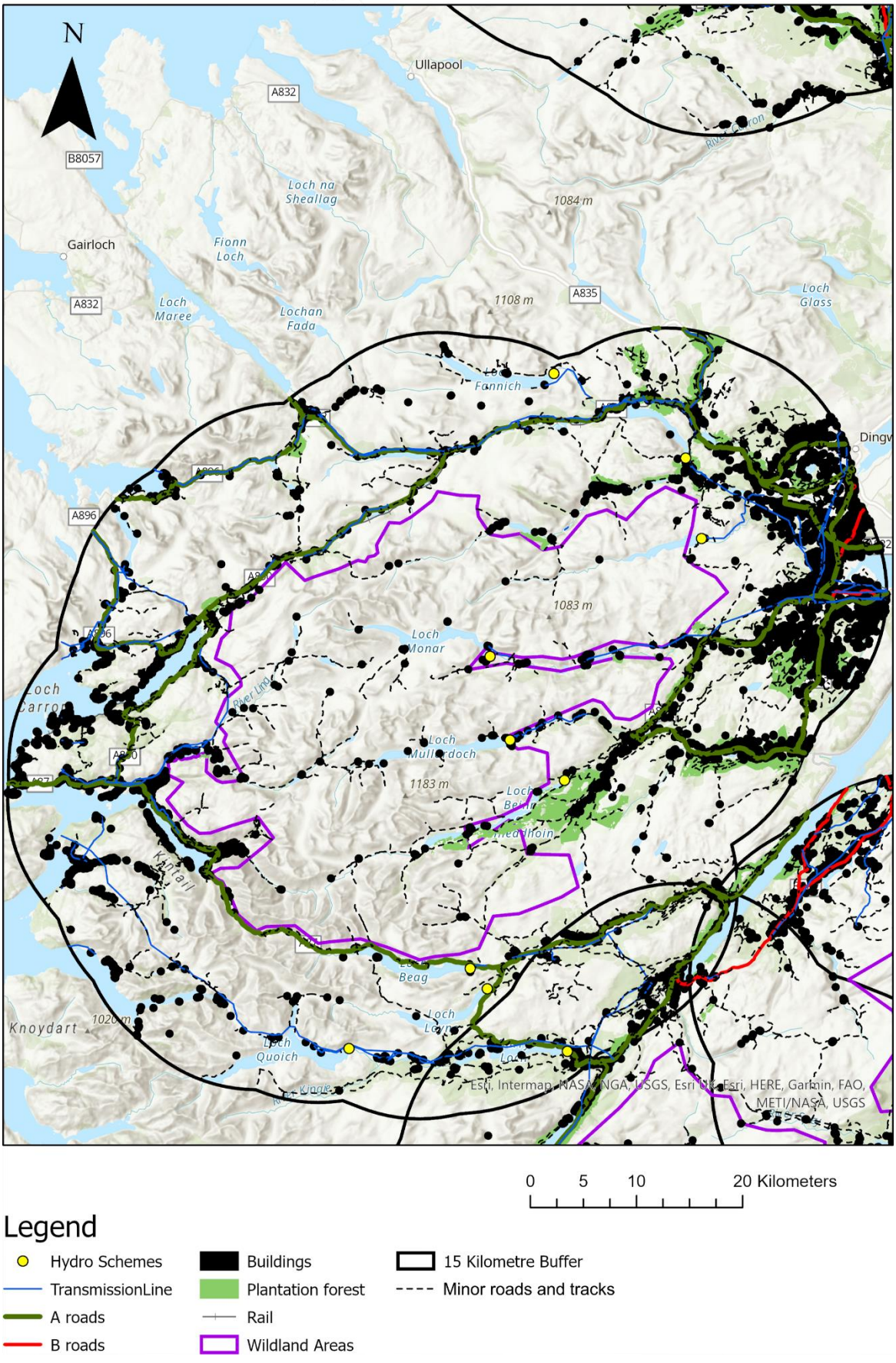
A3.13 Mapped features across WLA24 (1747)



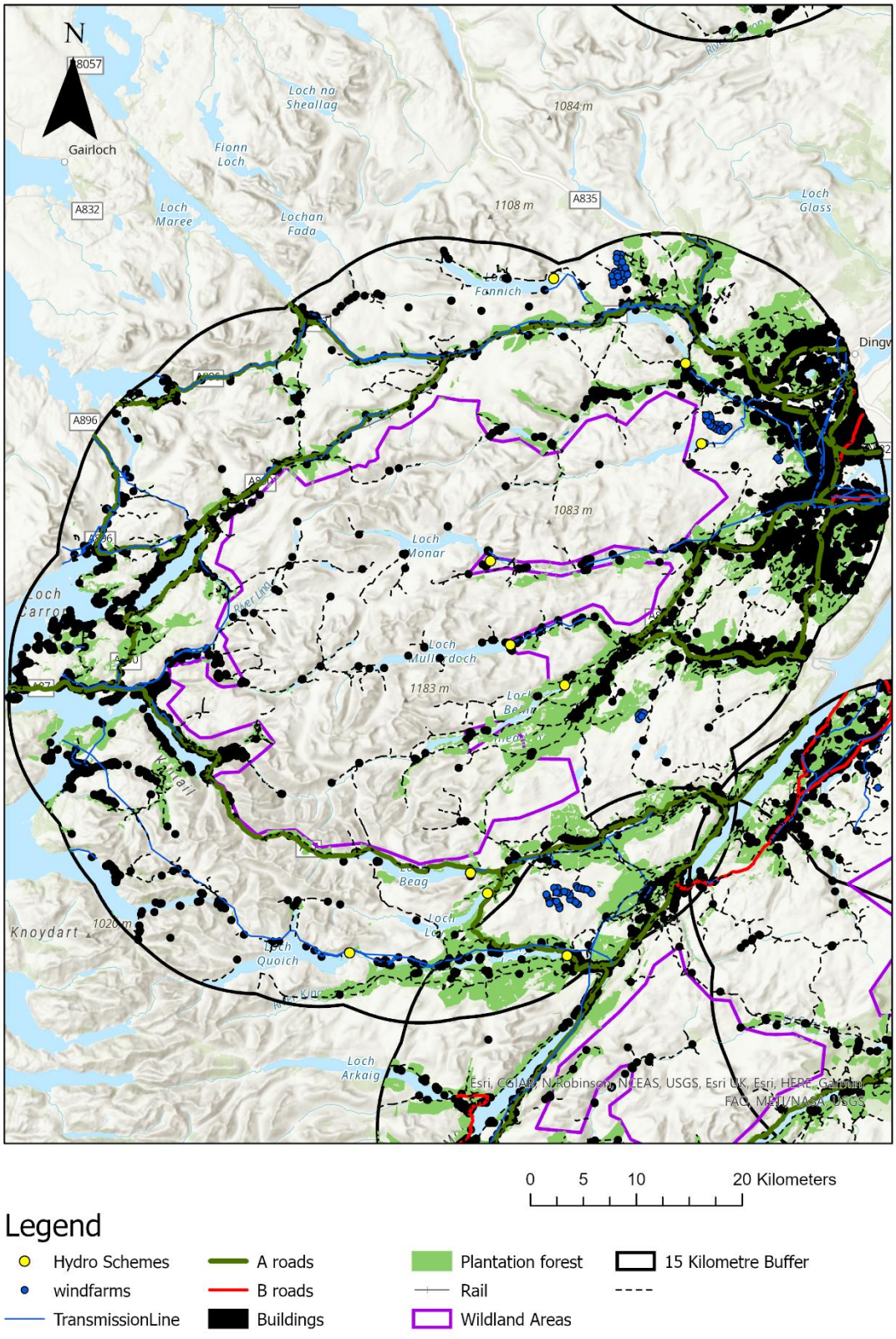
A3.14 Mapped features across WLA24 (1862)



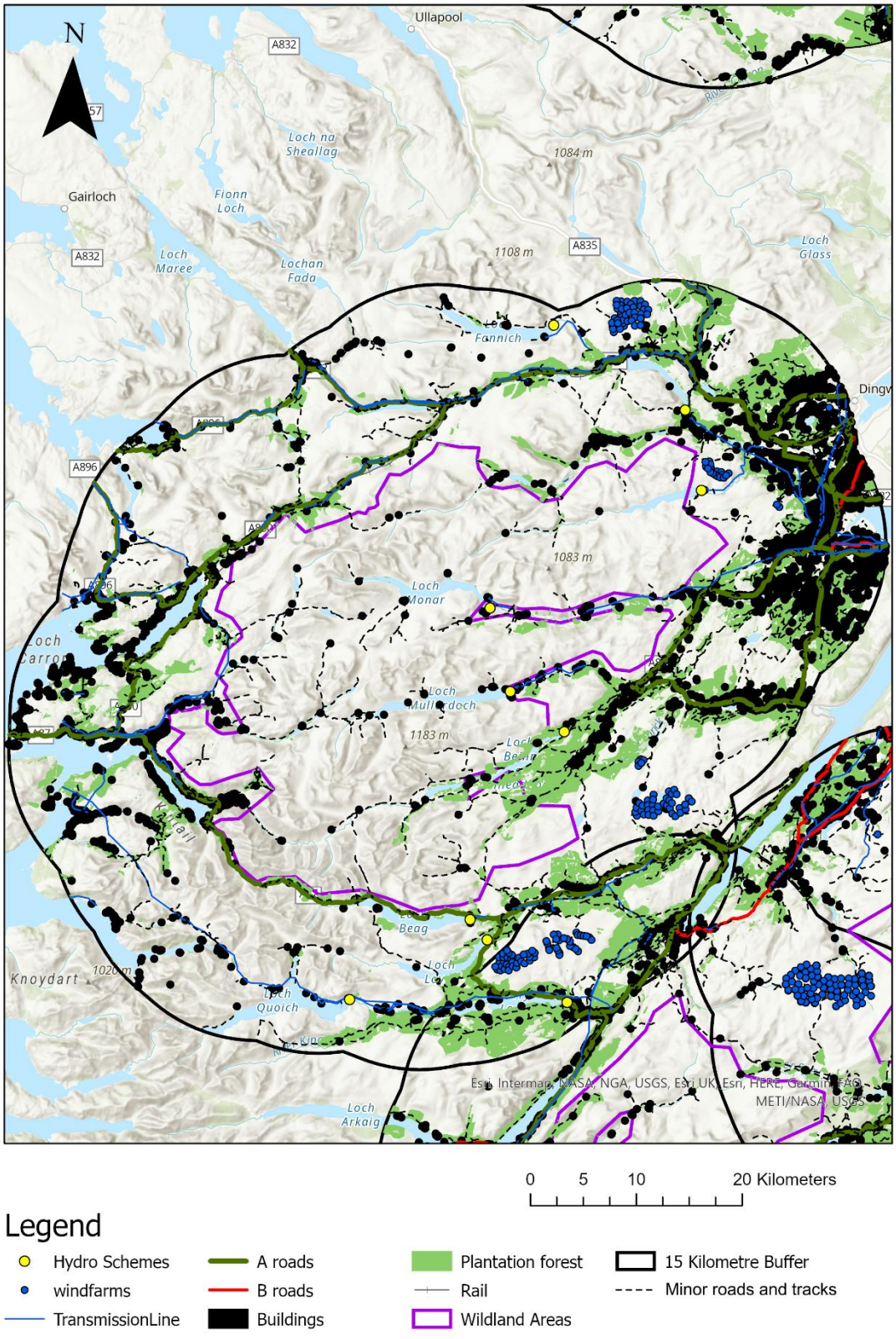
A3.15 Mapped features across WLA24 (1935)



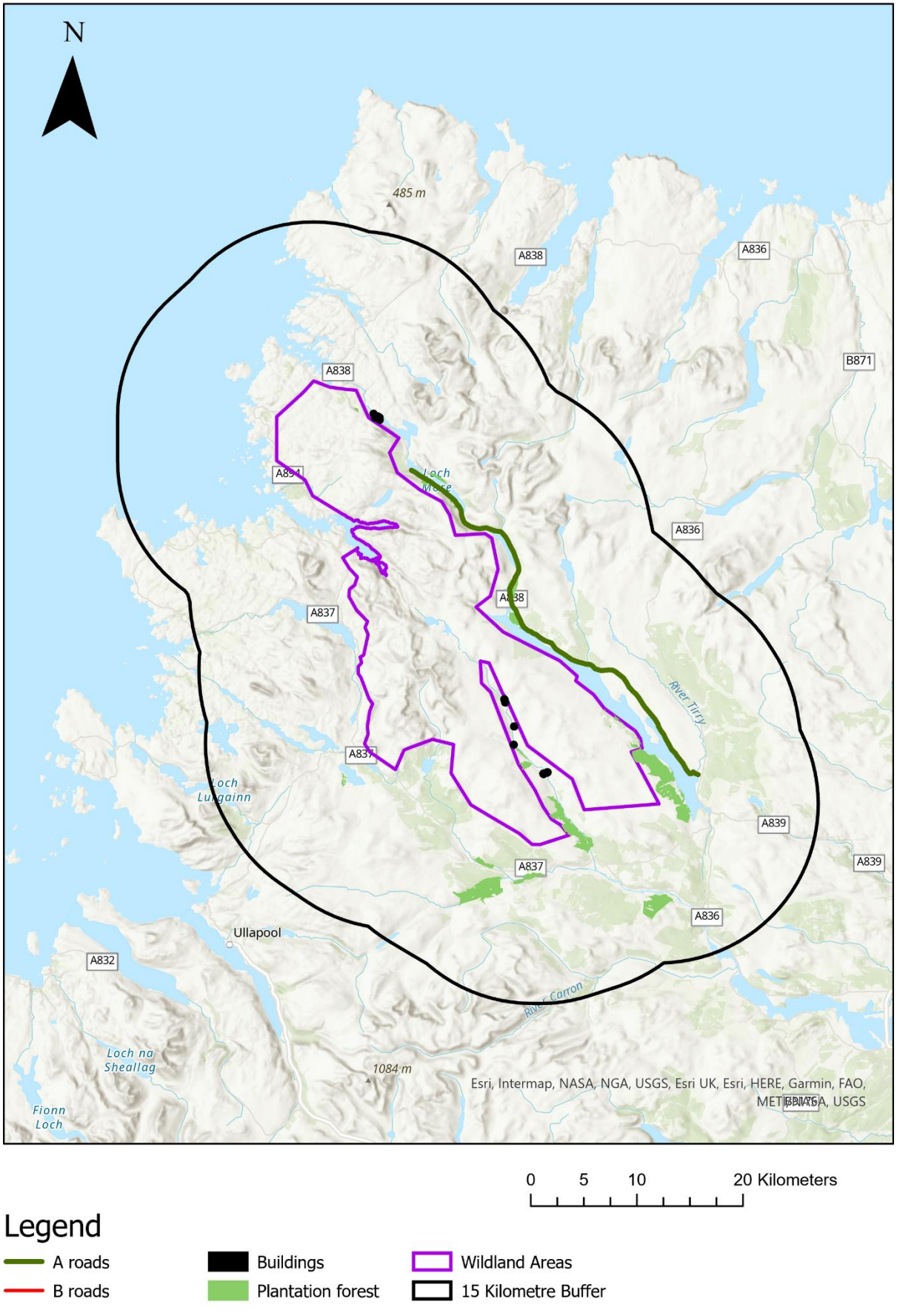
A3.17 Mapped features across WLA24 (1962)



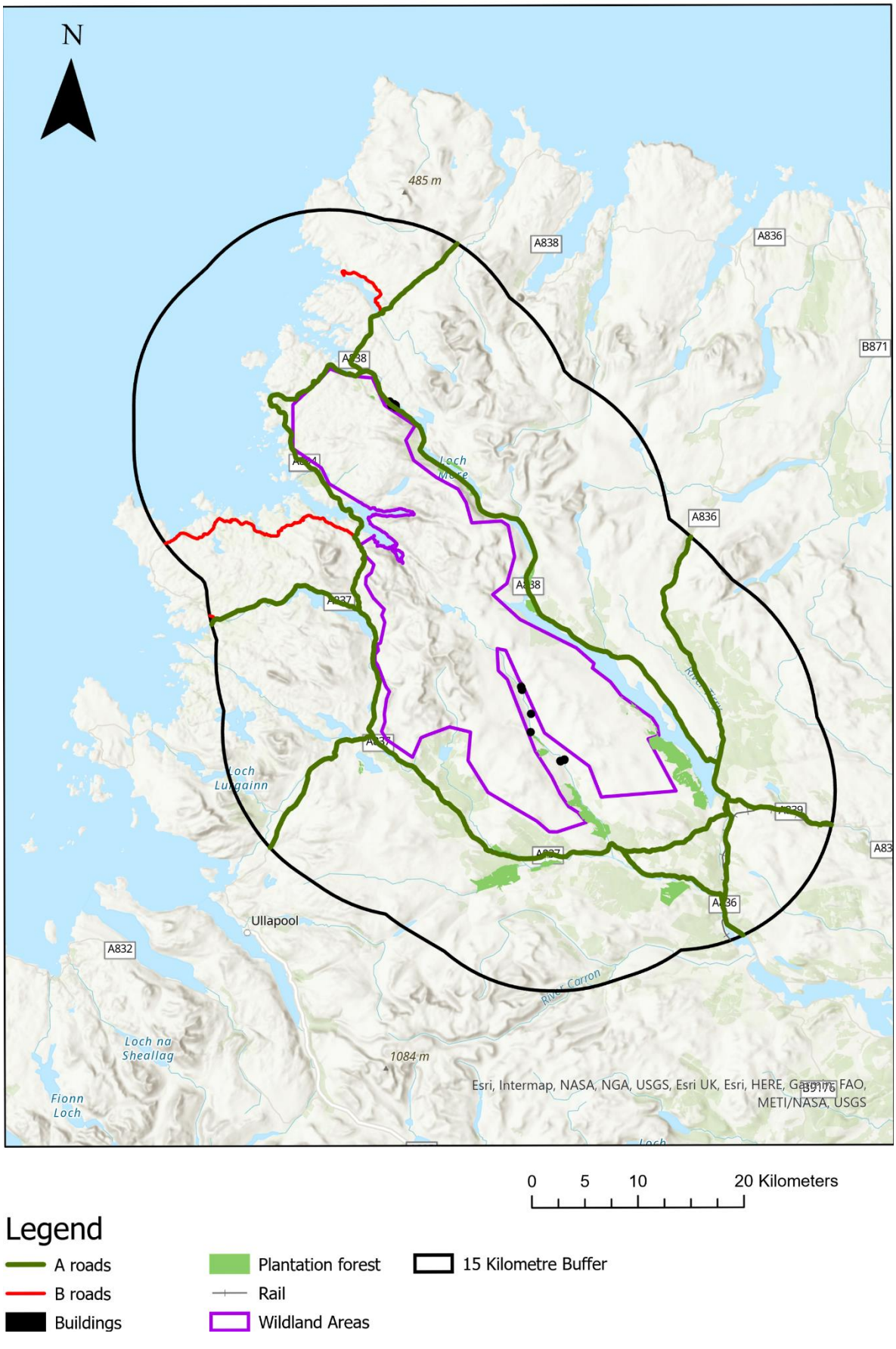
A3.18 Mapped features across WLA24 (2015)



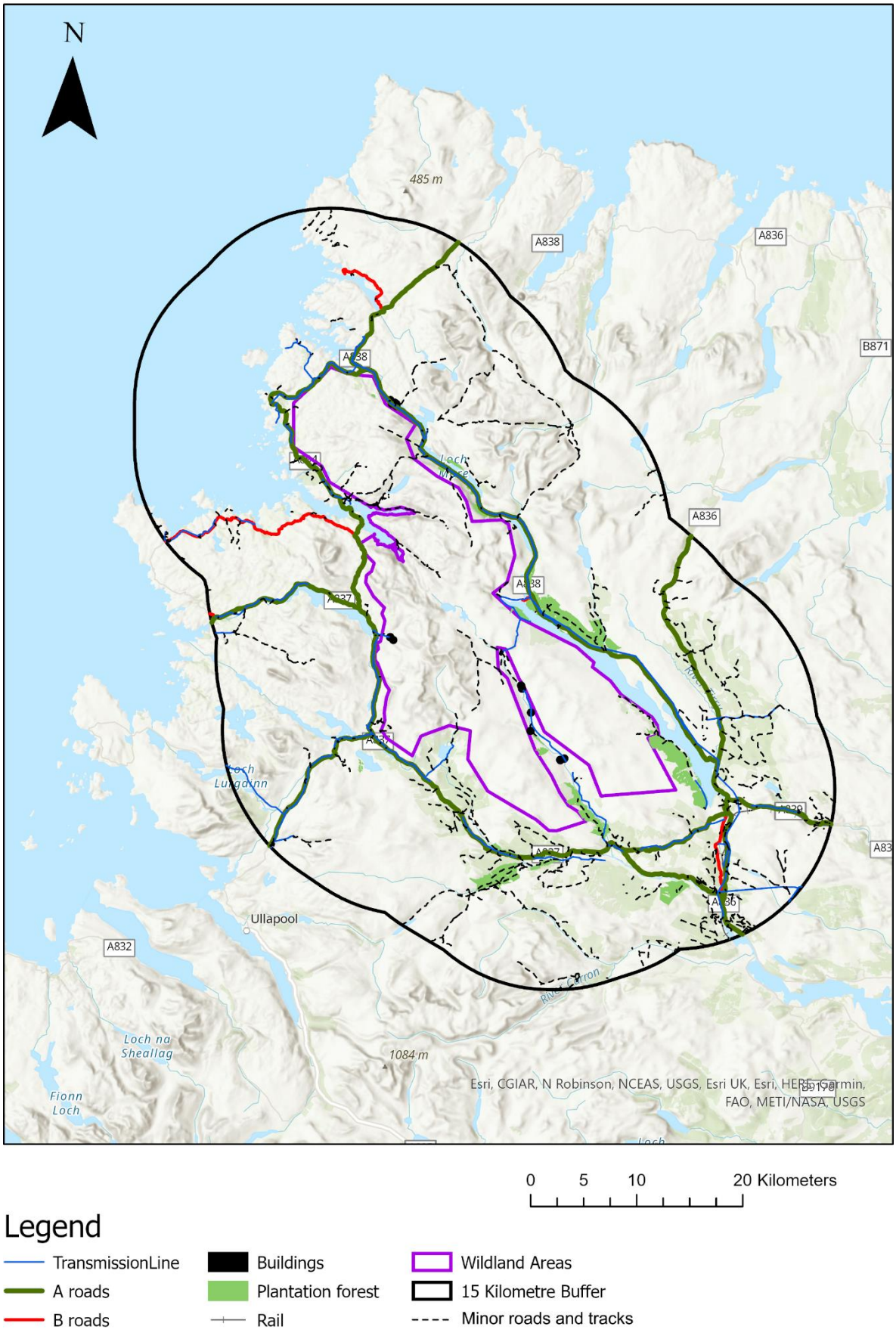
A3.19 Mapped features across WLA24 (2020)



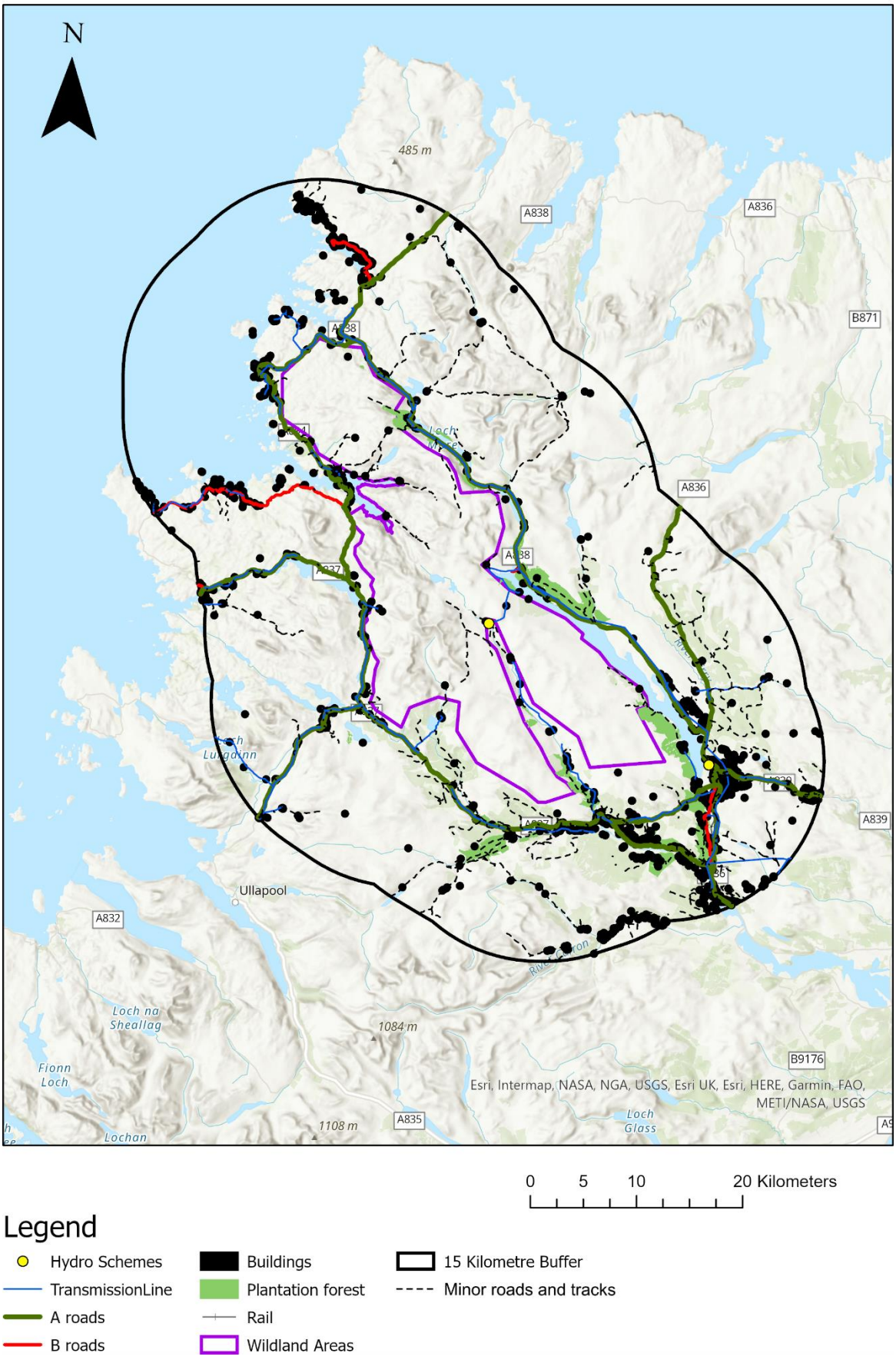
A3.20 Mapped features across WLA34 (1747)



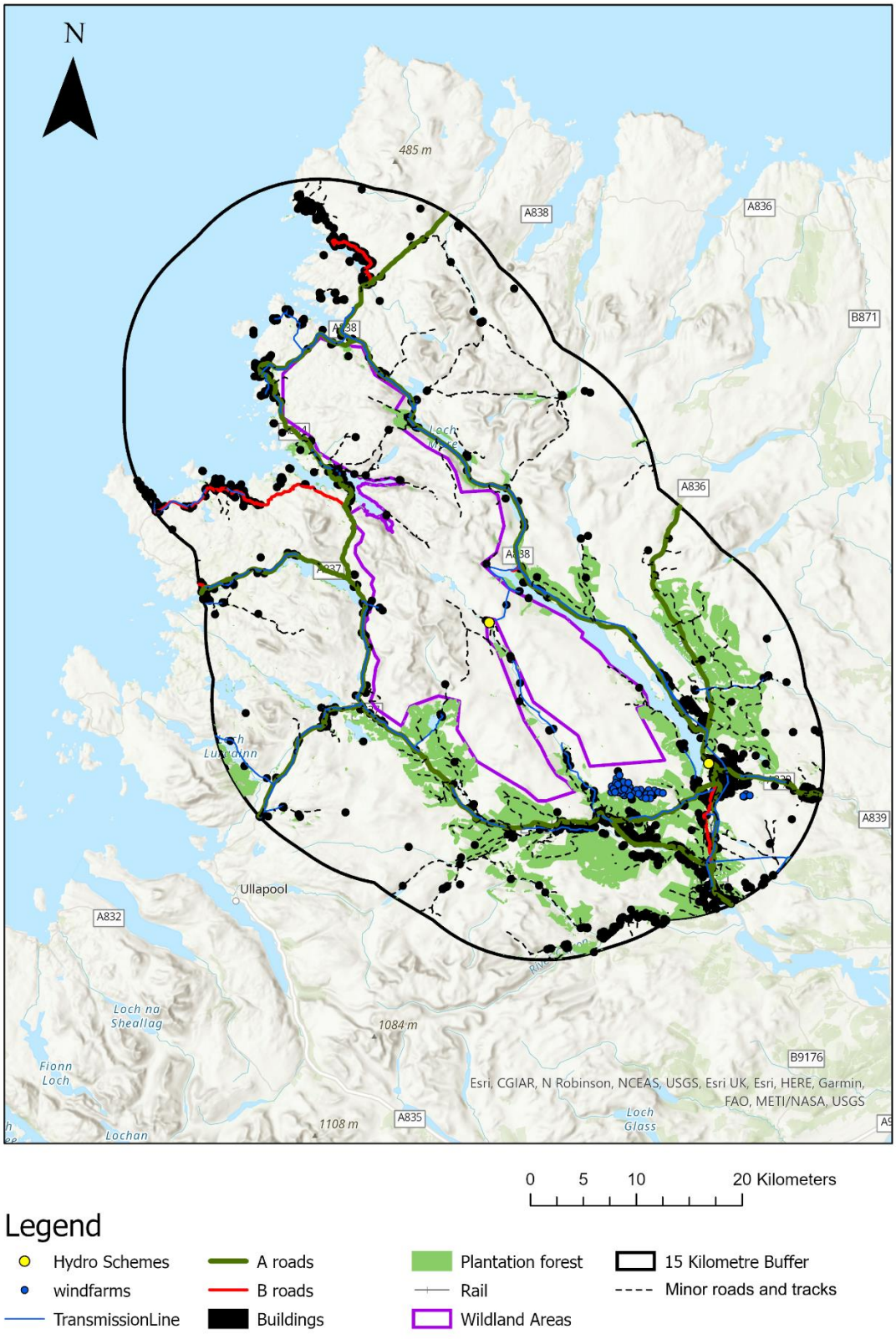
A3.21 Mapped features across WLA34 (1862)



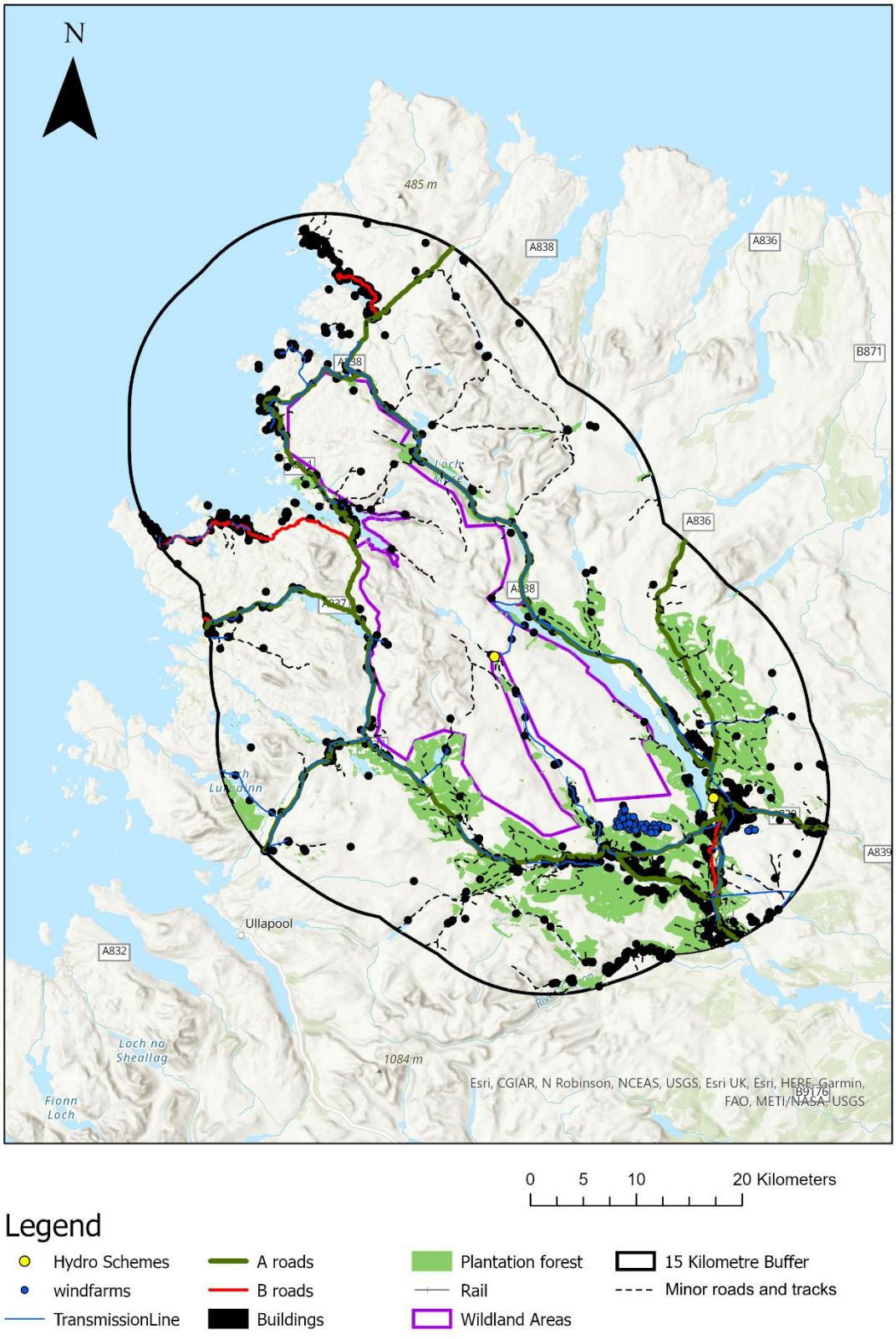
A3.22 Mapped features across WLA34 (1935)



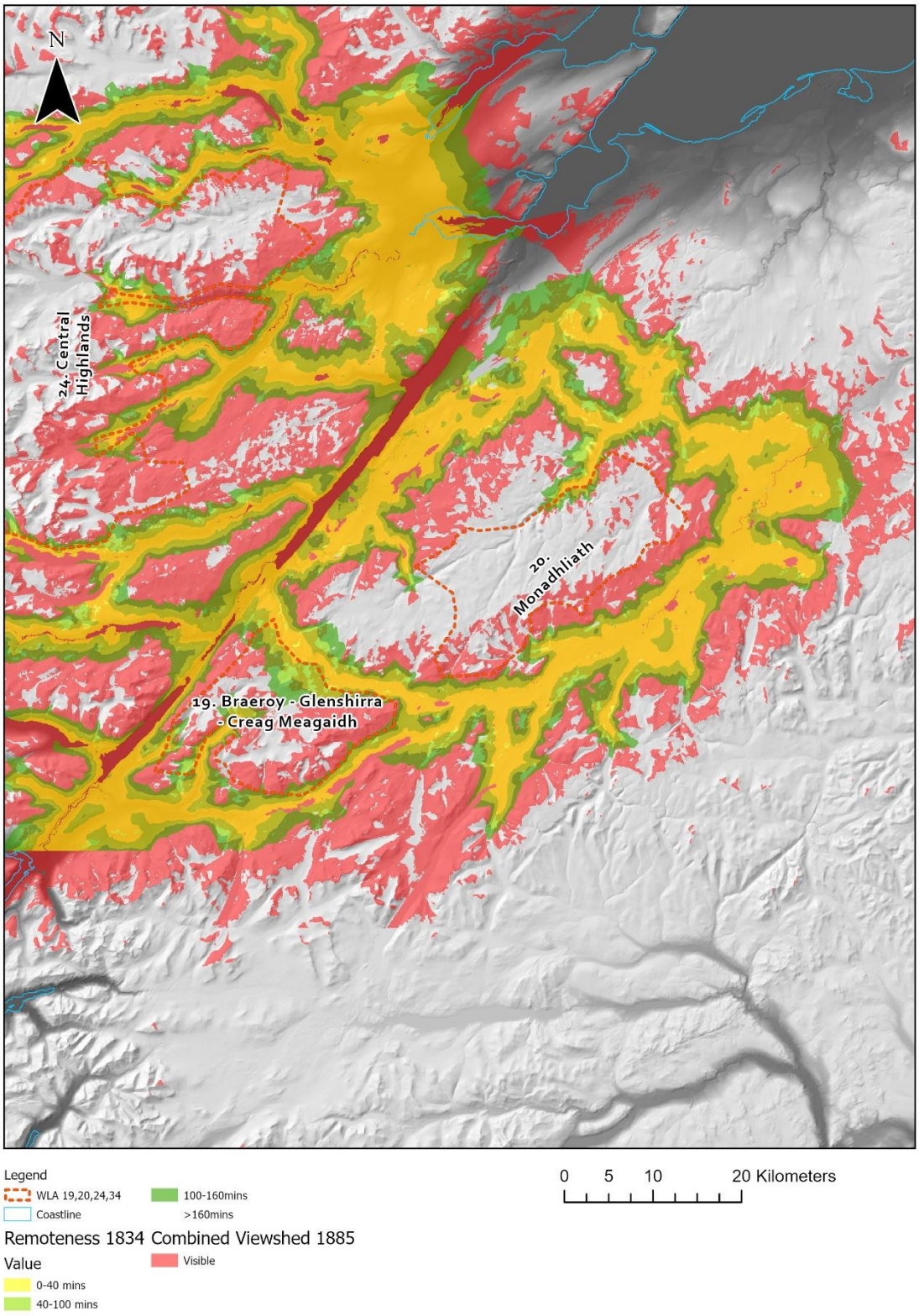
A3.23 Mapped features across WLA34 (1962)



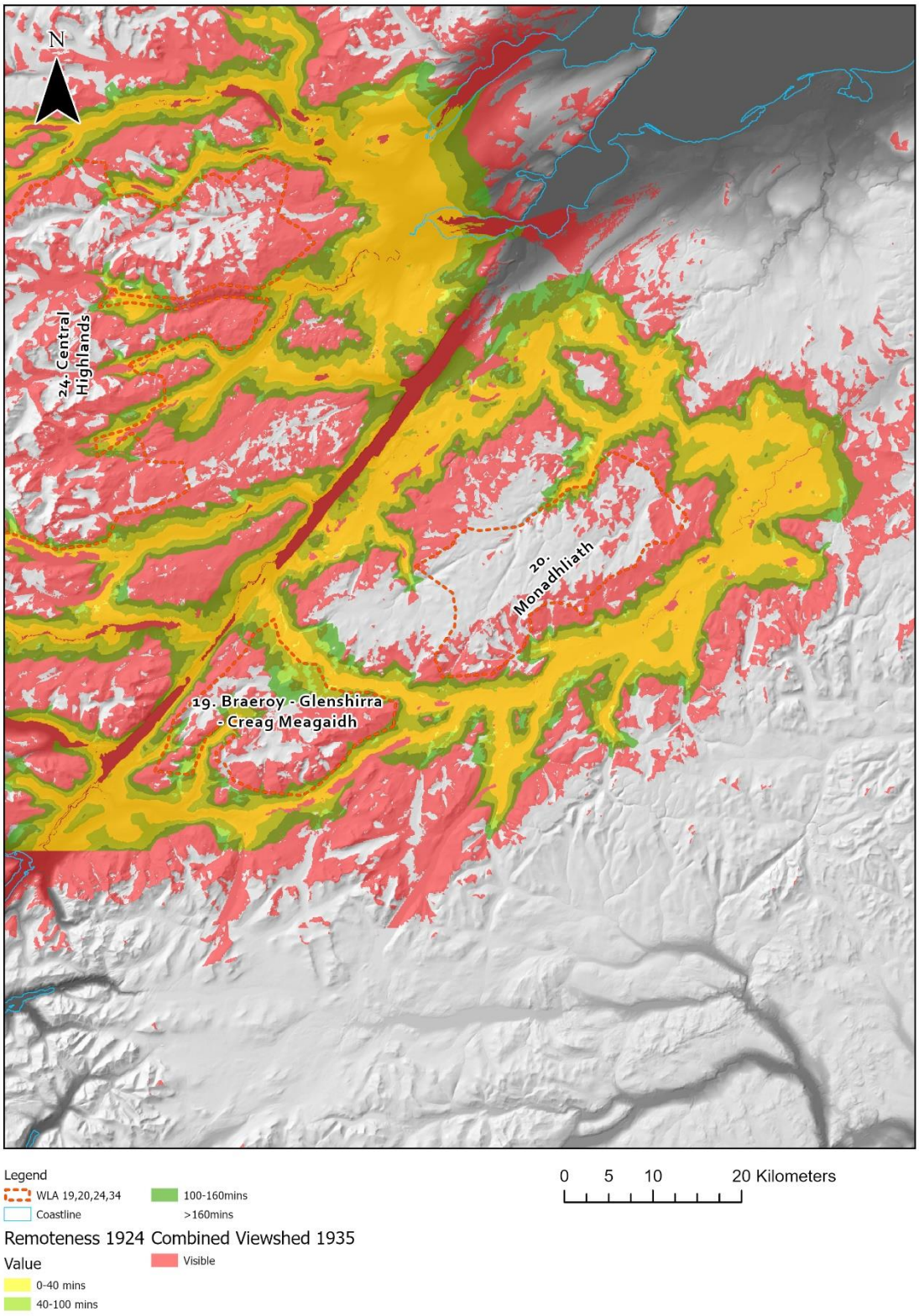
A3.24 Mapped features across WLA34 (2015)



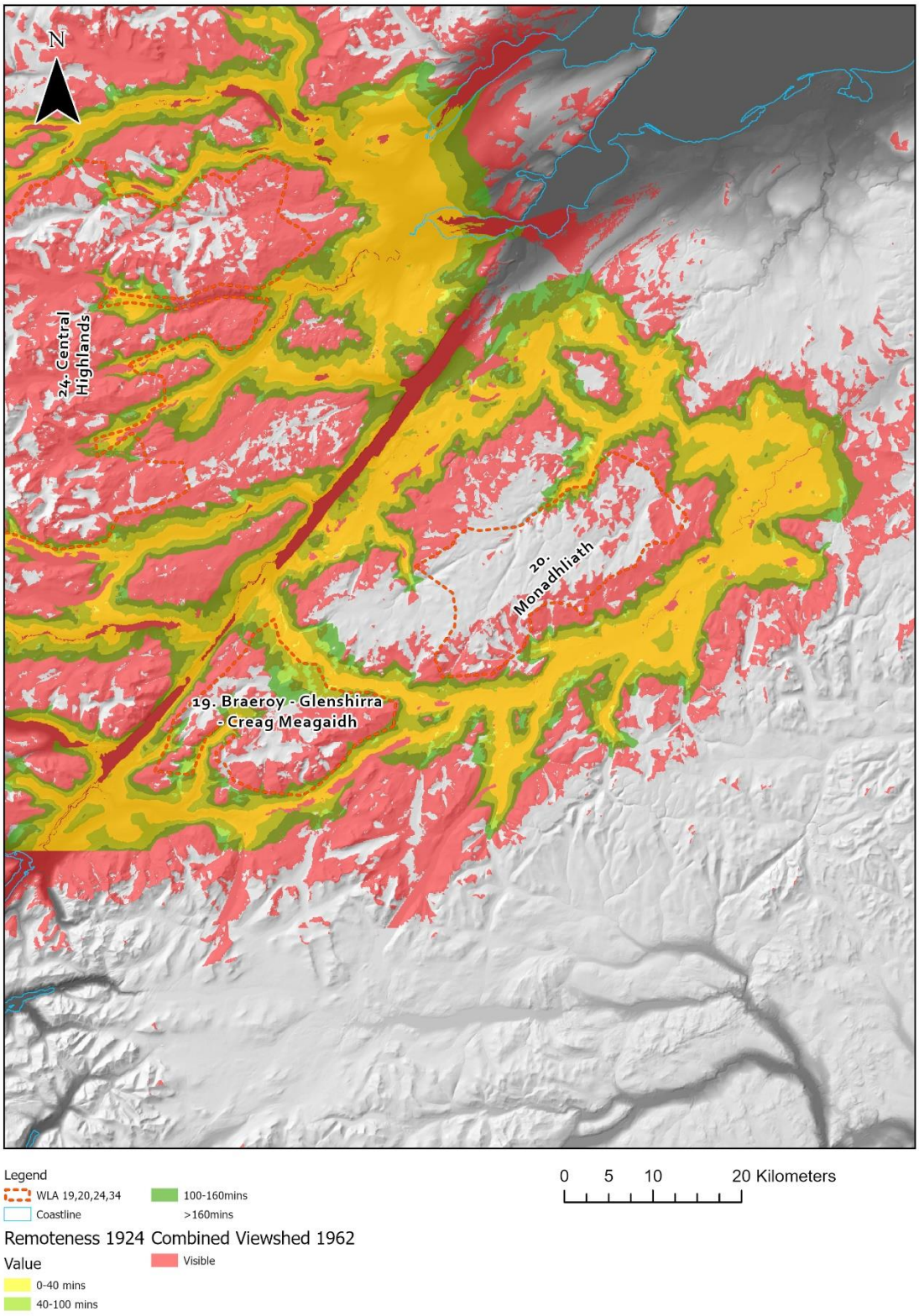
A3.25 Mapped features across WLA34 (2020)



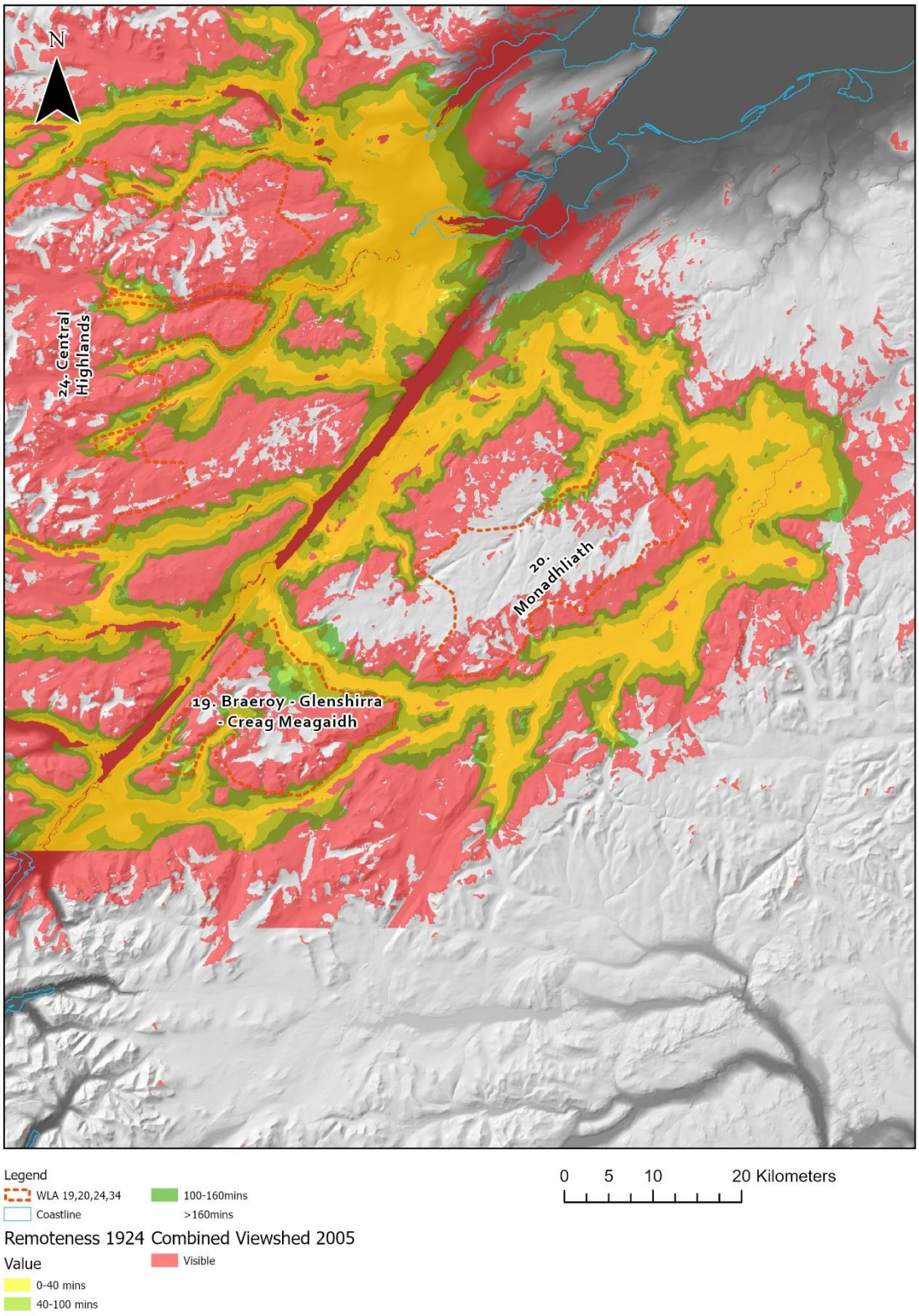
A4.1 Remoteness 1834 and combined viewshed across WLAs19 & 20 1885



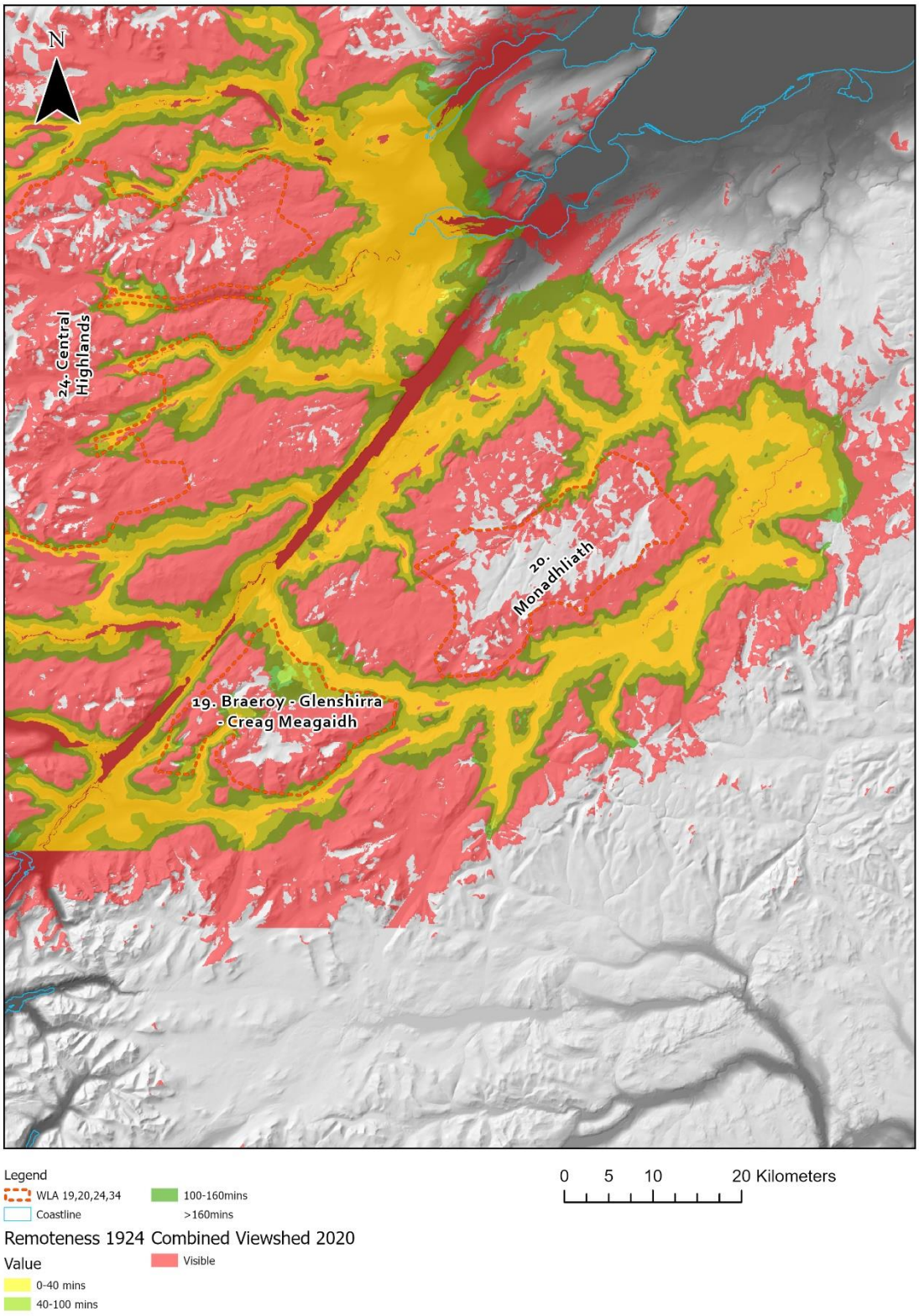
A4.2 Remoteness 1924 and combined viewshed across WLAs19 & 20 1935



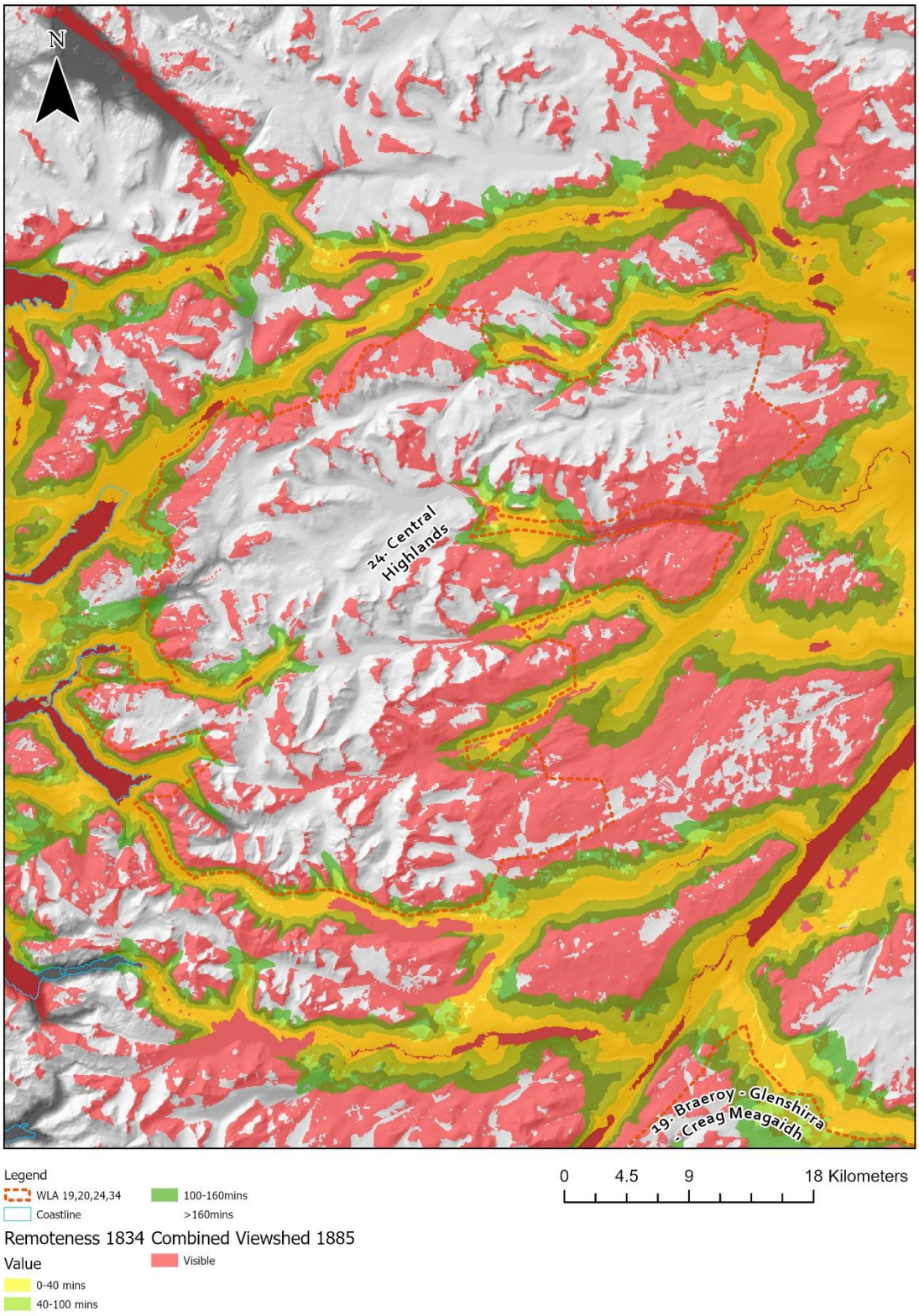
A4.3 Remoteness 1924 and combined viewshed across WLAs19 & 20 1962



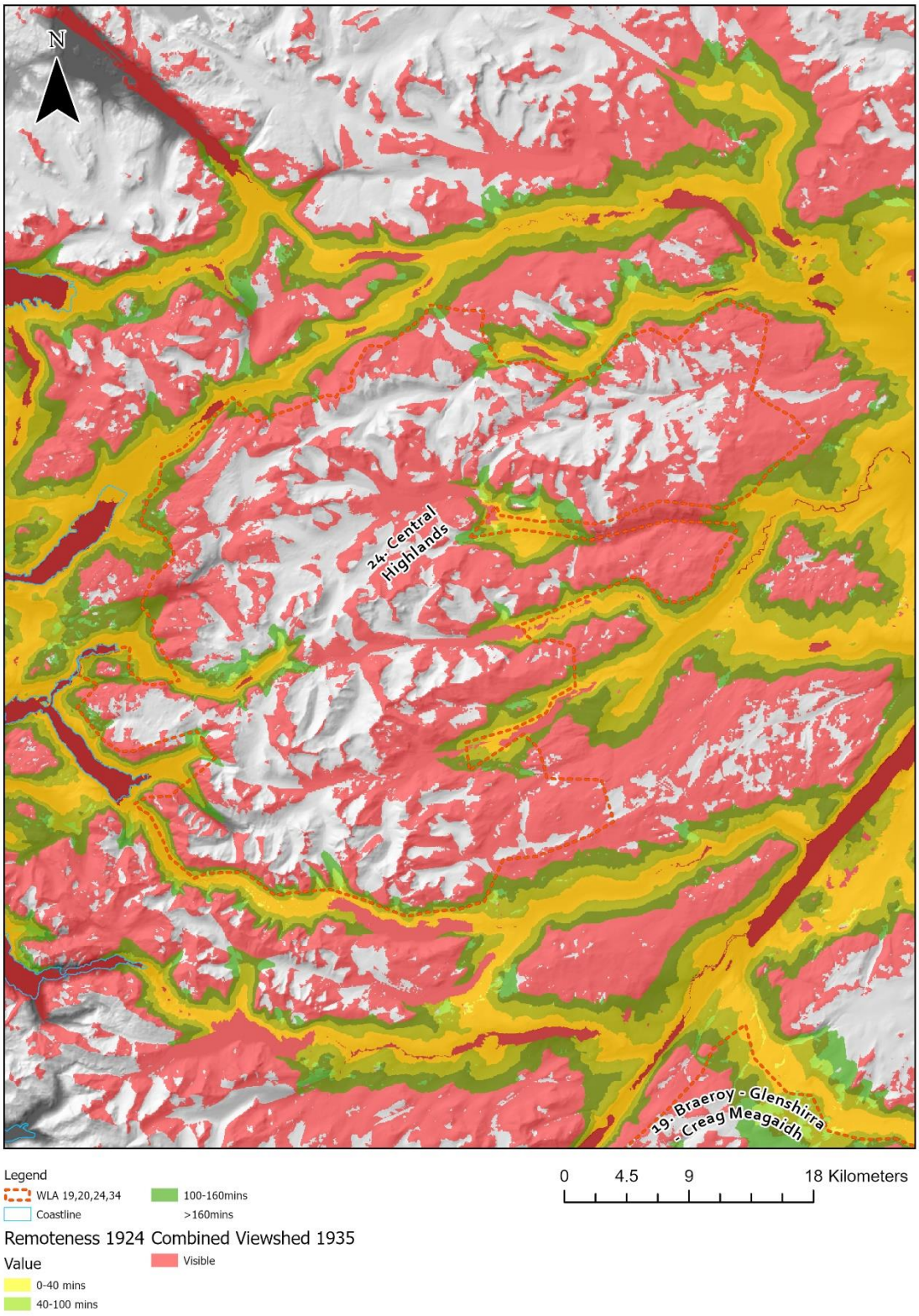
A4.4 Remoteness 1924 and combined viewshed across WLAs19 & 20 2005



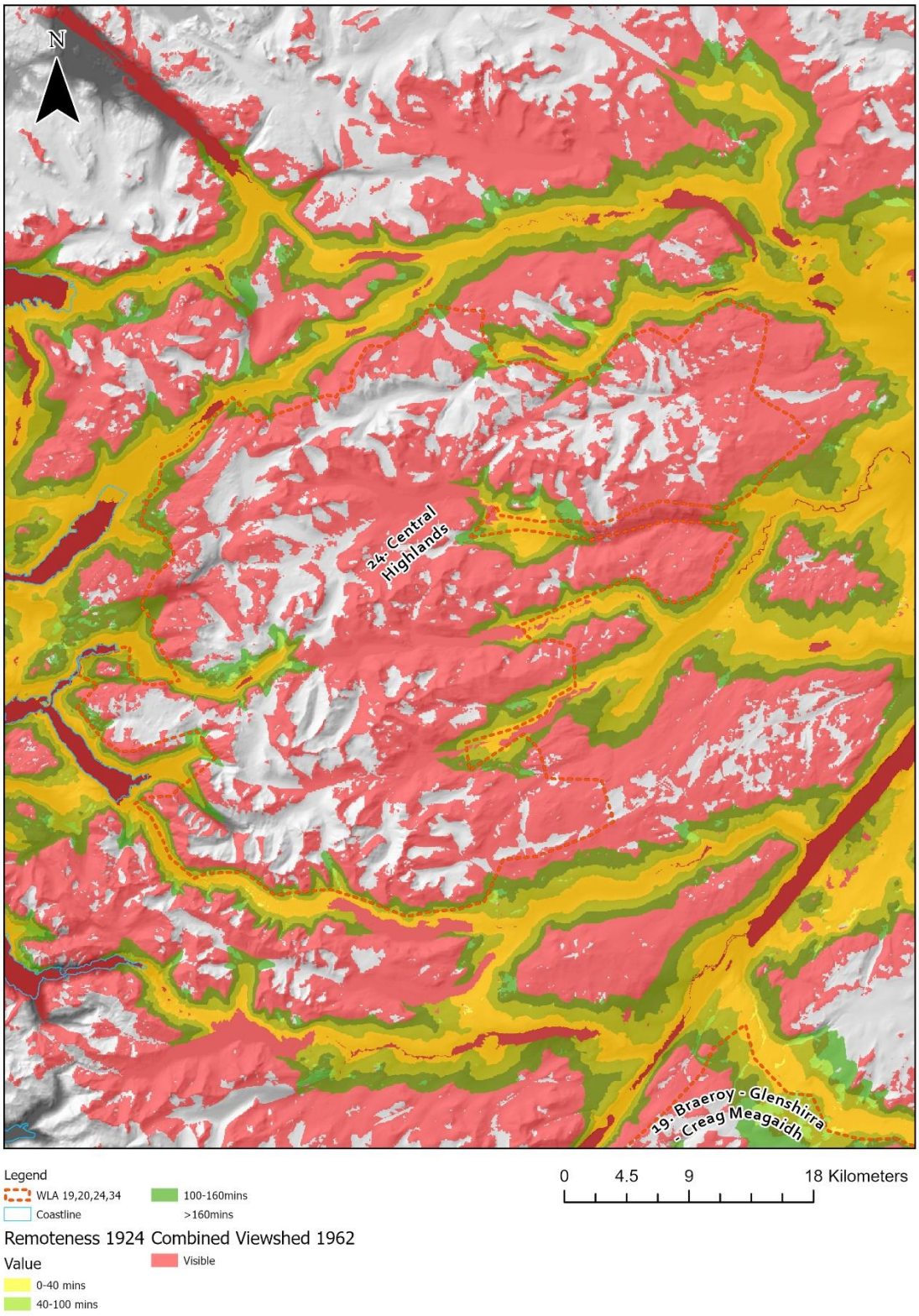
A4.5 Remoteness 1924 and combined viewshed across WLAs19 & 20 2020



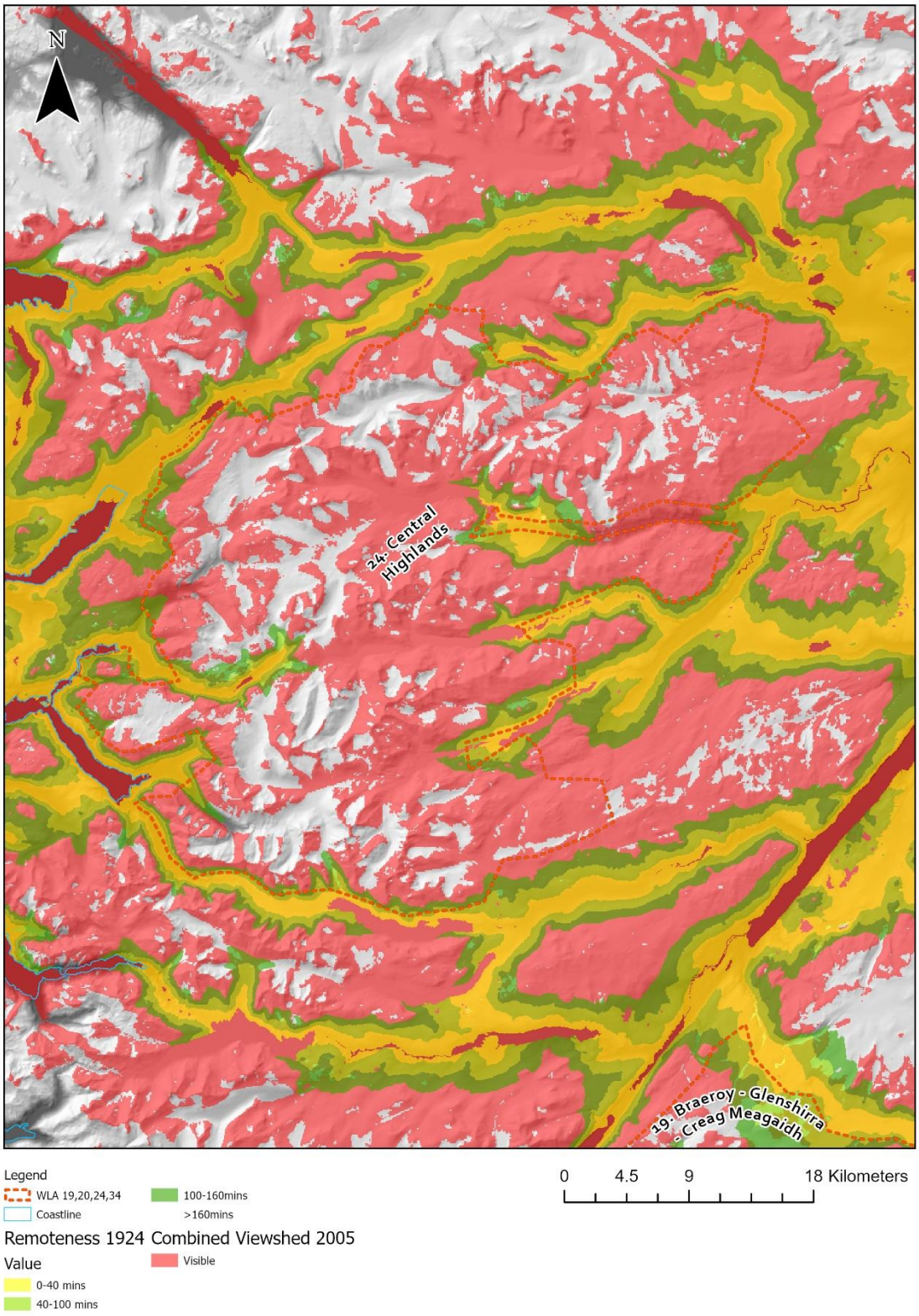
A4.6 Remoteness 1834 and combined viewshed across WLAs19 & 20 1885



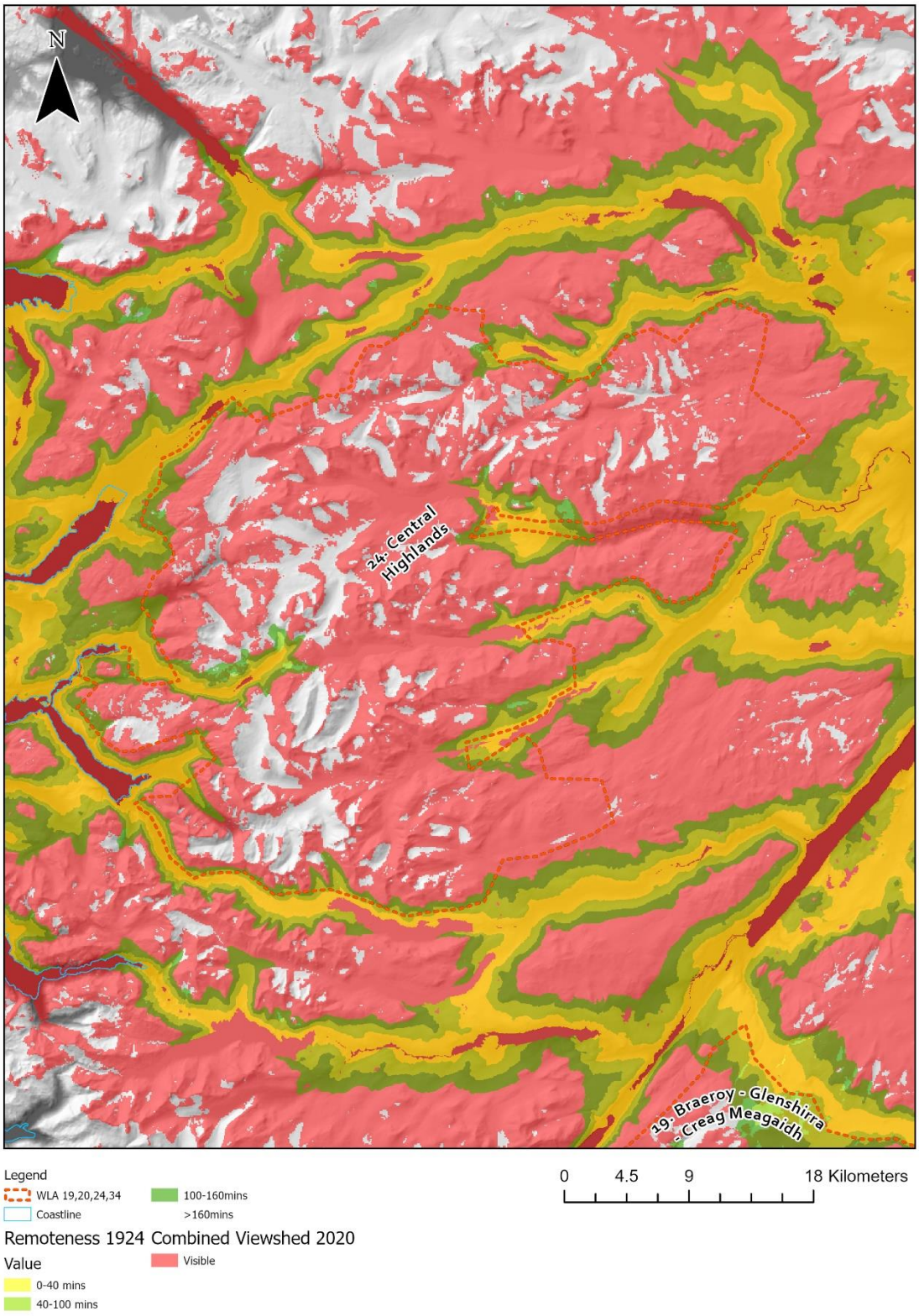
A4.7 Remoteness 1924 and combined viewshed across WLAs19 & 20 1935



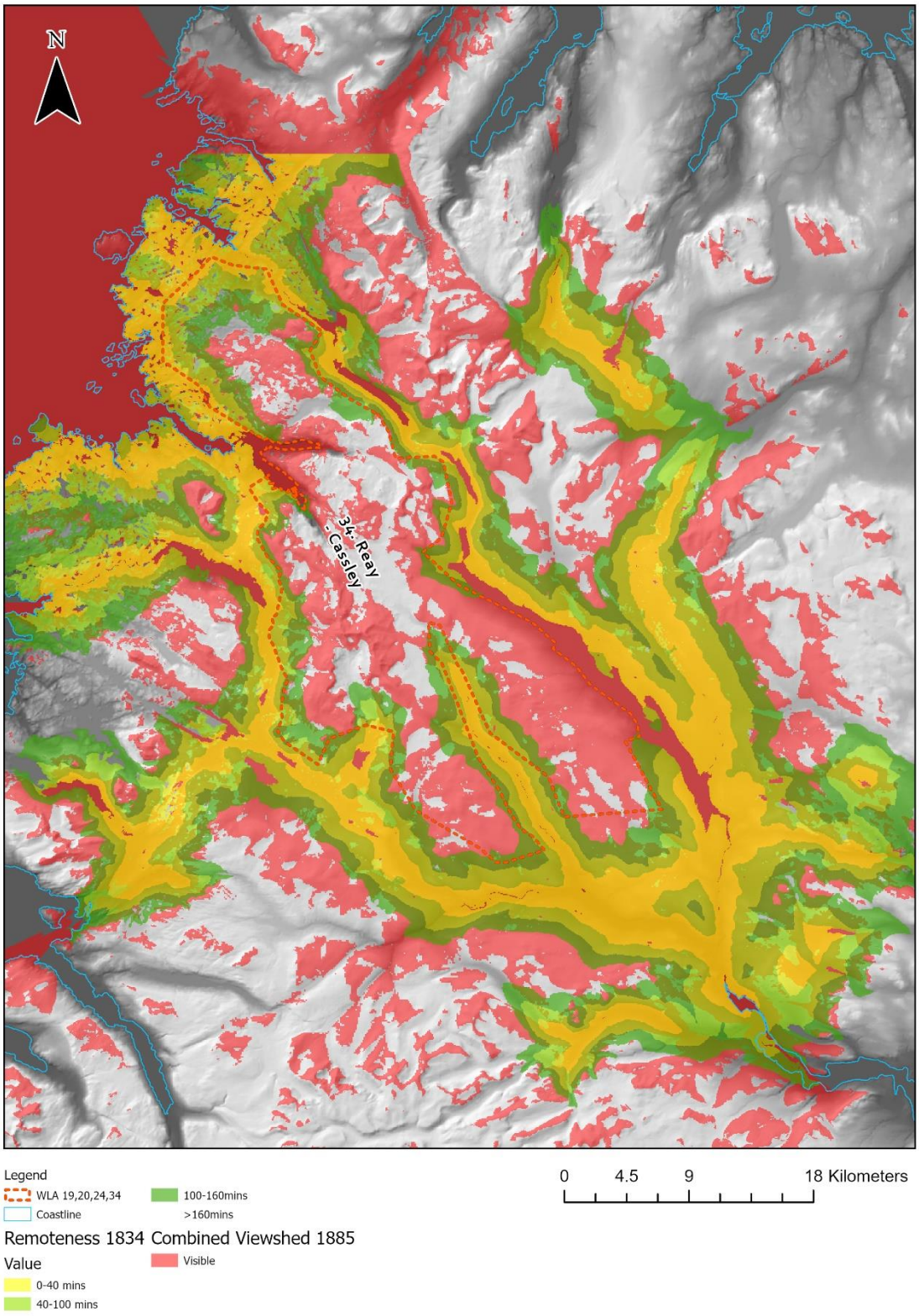
A4.8 Remoteness 1924 and combined viewshed across WLAs19 & 20 1962



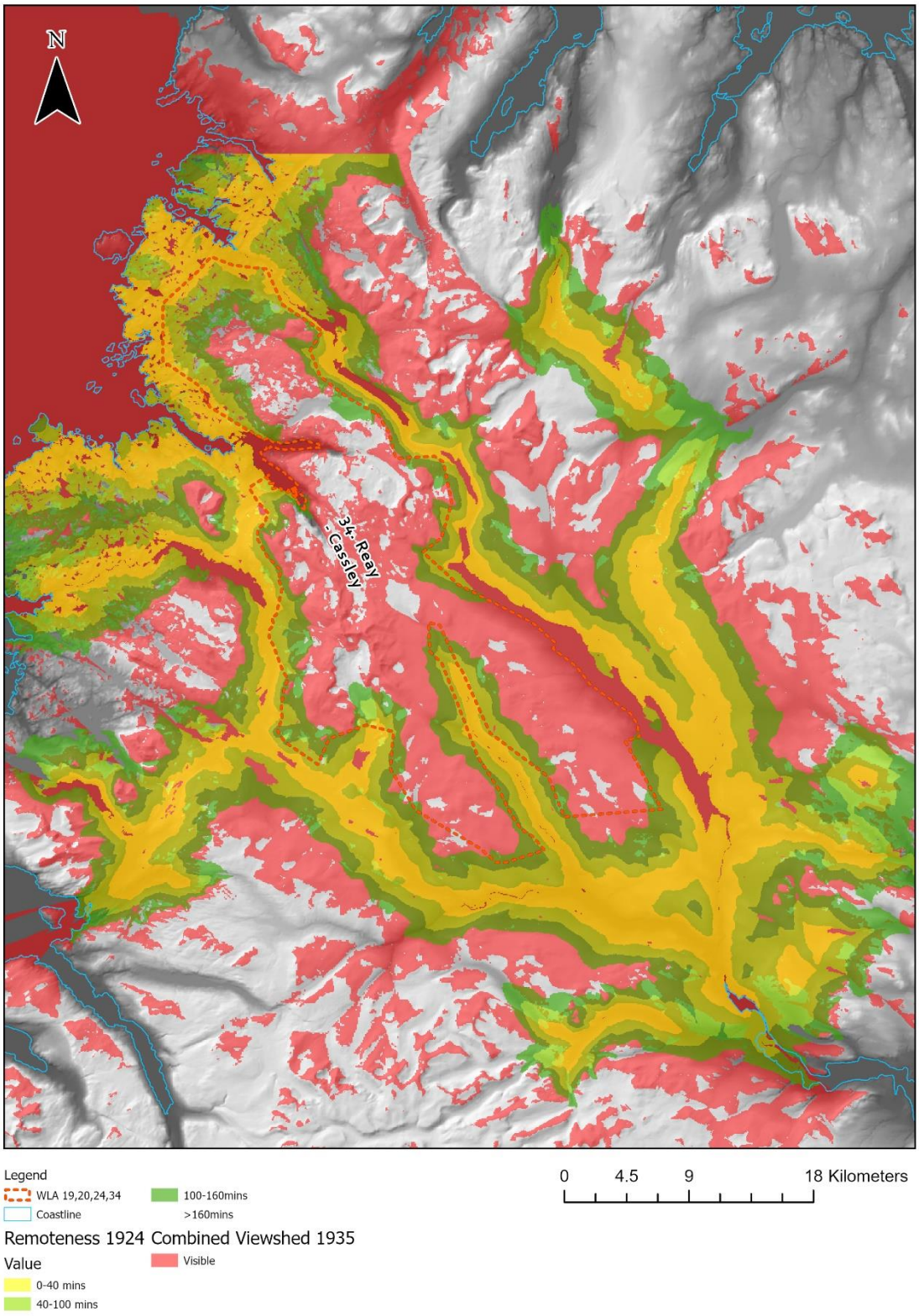
A4.9 Remoteness 1924 and combined viewshed across WLAs19 & 20 2005



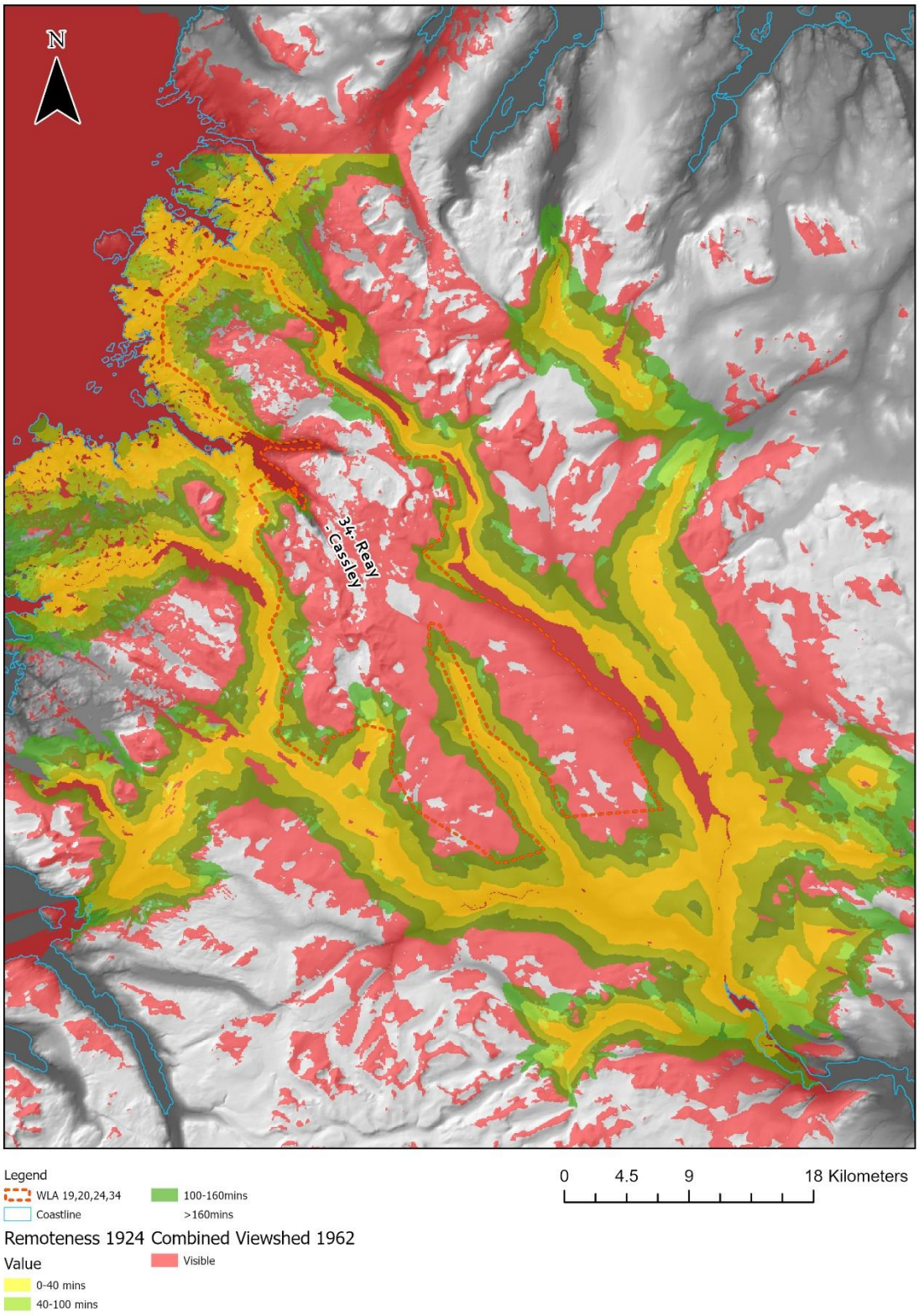
A4.10 Remoteness 1924 and combined viewshed across WLAs19 & 20 2020



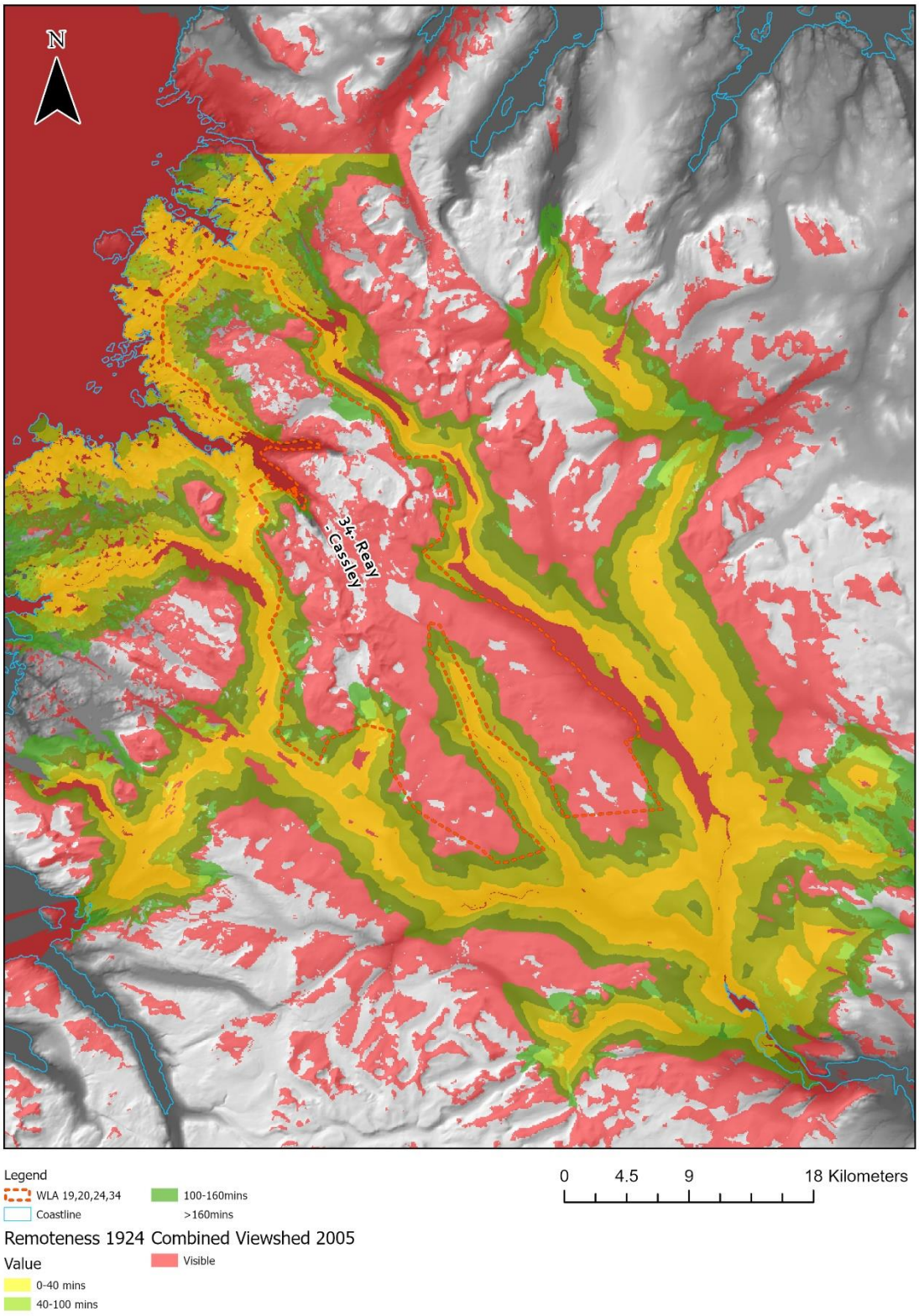
A4.11 Remoteness 1834 and combined viewshed across WLAs19 & 20 1885



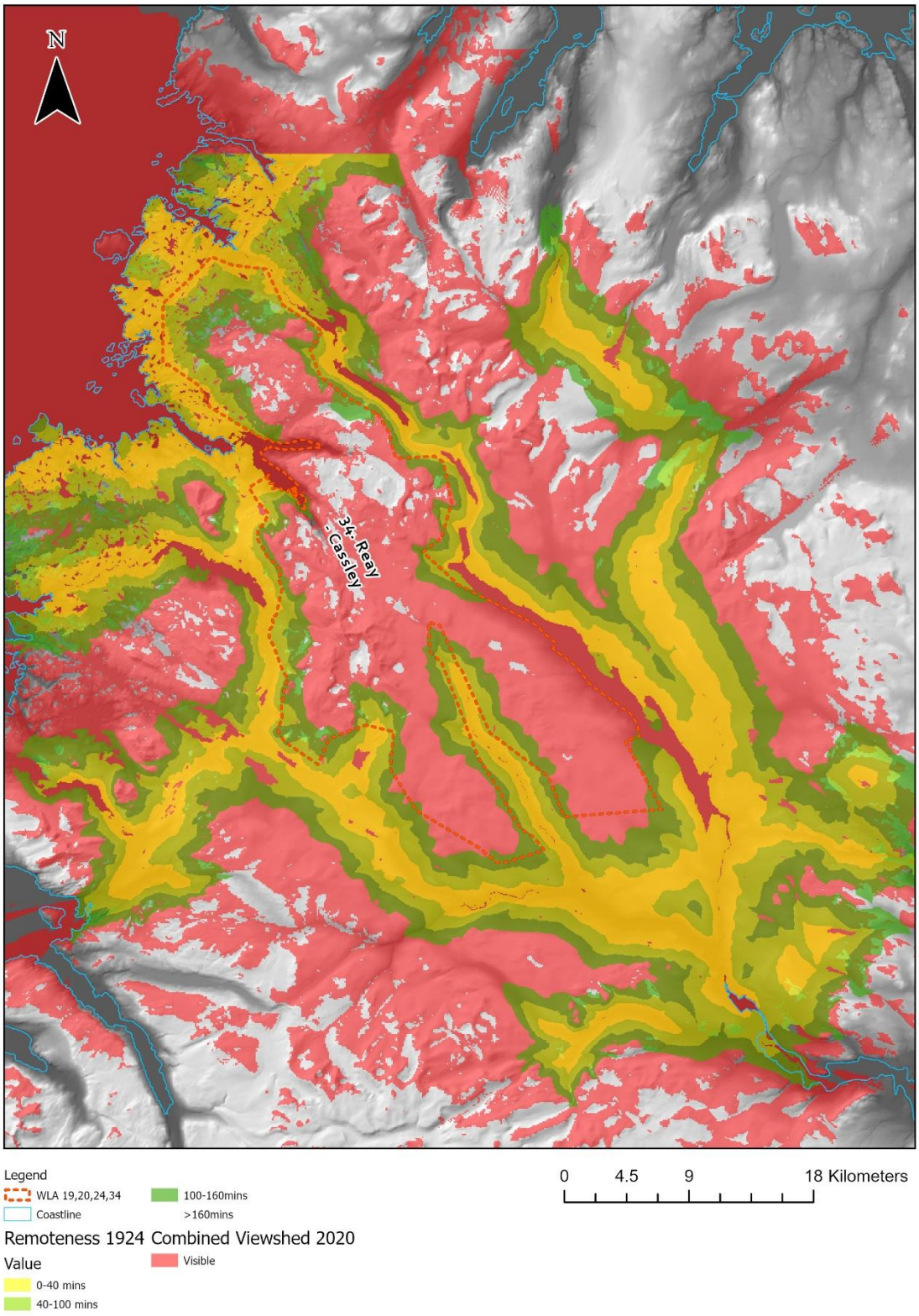
A4.12 Remoteness 1924 and combined viewshed across WLAs19 & 20 1935



A4.13 Remoteness 1924 and combined viewshed across WLAs19 & 20 1962



A4.14 Remoteness 1924 and combined viewshed across WLAs19 & 20 2005



A4.15 Remoteness 1924 and combined viewshed across WLAs19 & 20 2020

Published by

The Scottish Wild Land Group

The group is a charity run by volunteers with the following objectives:

– To promote the conservation of wild land in Scotland
– To promote public awareness of the problems facing wild land in Scotland
– To promote and encourage the implementation of good planning policies
– To co-operate with other bodies on the above

www.swlg.org.uk

Contact: admin@swlg.org.uk

In association with

The Scottish Mountaineering Trust

A charity that provides grants to projects and organisations that promote public recreation, knowledge and safe enjoyment of the mountains, especially in the mountains of Scotland

thesmt.org.uk

The Cairngorms Campaign

This charity strives to prevent unsustainable, damaging developments and argues for better management of the Cairngorms area. It works with landowners, managers, local authorities, government and agencies to this end

www.cairngormscampaign.org.uk

Reference to this document:
Wildland Research & Ian Kelly Planning Consultancy (2022). *The State of Wild Land in the Scottish Highlands.* Scottish Wild Land Group (www.swlg.org.uk), 140 pages.