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Abbreviations Used in this Annex

Confor	Confederation of Forest Industries
ERAMMP	Environment and Rural Affairs Monitoring & Modelling Programme
INNS	Invasive Non-Native Species
NRW	Natural Resources Wales
RFS	Royal Forestry Society
SIMWOOD	Sustainable Innovative Mobilisation of Wood (an EU project)
UKCEH	UK Centre for Ecology & Hydrology
UKFS	UK Forestry Standard
UKWAS	UK Woodland Assurance Standard
WGWE	Welsh Government Woodland Estate

Abbreviations and some of the technical terms used in this report are expanded on in the programme glossaries: https://erammp.wales/en/glossary (English) and https://erammp.cymru/geirfa (Welsh)

Contents

1. INTRODUCTION TO ANNEX-2

A minimum of 146,000 hectares (47%) of woodlands in Wales are managed according to the requirements of the UK Forestry Standard (UKFS; Forestry Statistics 2019). This figure includes the Welsh Government Woodland Estate (WGWE) and various private woodlands.

There is uncertainty in the area of privately owned woodland managed according to UKFS that is not certified, therefore 47% is likely to be an underestimate. In 2015 an estimated 55,000 hectares fell in this latter category (Welsh Government 2016) based on the area of woodland receiving grant funding, and therefore between 141,000 and 196,000 hectares of woodland in Wales were estimated to be managed according to UKFS (Welsh Government 2016).

The area of woodland in Wales being managed to UKFS increased from 123,000 hectares in 2001 to 146,000 hectares in 2019. There is limited evidence to link this increase to specific factors but some authorities have indicated that they mainly attribute this to increased demand and prices for timber and woodfuel, which are currently [2020] at a 30-year high. The UK government had set a target for the area of woodland managed to UKFS to reach 67%, however some stakeholders argue that there is economic justification for the target to be higher (Royal Forestry Society 2019).

2. BENEFITS, RISKS AND CHALLENGES FOR MANAGING UNDERMANAGED WOODLAND

2.1 Challenges

There are three main challenges:

In terms of policy much attention is often focussed on the extent of woodland and very often on efforts to increase the area of woodland (ADAS 2015). For new woodlands it may be many years before the benefits of these woodlands are fully realised and there seems little point creating additional unmanaged woodland for the future unless these are managed from an early stage towards an agreed purpose. Bringing unmanaged woodland into management can have rapid economic, environmental and social impacts although in some cases a non-intervention management plan is prescribed as appropriate. Hence the challenge is to shift focus from measures such as 'area of woodland' or 'area of new woodland created' to ones that reflect the value of woodlands and their contribution to the economy, environment and quality of life.

If it is decided that increasing the amount of managed woodland is a good thing then the second challenge is to make this happen and for this change to be permanent and sustained. Many traditionally managed broadleaved woodlands ceased being managed in the last century reflecting changes in local and regional economies. Changing this dynamic will not be easy (see Section 2.3 on risks below).

The third challenge is one of definition and clarity of purpose when seeking to decrease the area of unmanaged or undermanaged woodland. As Harmer et al. (2010) point out, management of woodland is the process of deciding what actions need to be taken to achieve objectives. It should be noted, in some cases management objectives can be achieved by specification of intended non-intervention regimes, which would have a similar outcome to what many people perceive as 'undermanaged' or 'unmanaged'. In the majority of cases management of a woodland will lead to interventions such as thinning, coppicing and management of grazers (e.g. squirrels, deer and livestock) and it is these management practices that produce timber, create habitat diversity and improve the aesthetics of woodland. In the rest of this chapter the assumption is made that bringing woodlands back into management will also, in the majority of cases, lead to interventions that will enhance a range of services, be this timber, woodfuel, biodiversity or opportunities for recreation.

2.2 Benefits

The Royal Forestry Society (RFS 2019) has recently estimated that the area of unmanaged woodland that could physically and economically be feasible to bring back into pro-active management is up to 200K ha in England and 53K ha in Wales, a combined area larger than the Lake District National Park. They have calculated this could generate up to £20million worth of home-grown timber and woodfuel a

year, support 240 rural jobs in the supply chain and reduce the need for imports to meet demand.

The main benefits of bringing woodland back into management are economic, environmental and social.

2.2.1 Economic

A significant economic benefit of managing woodland is the production of sustainable and responsibly produced timber and woodfuel. Use of timber, particularly in construction, would reduce our reliance on imported timber; we currently import 80% of our needs. Figures produced by Confor (the UK Confederation of Forest Industries) have estimated that England and Scotland imported 32,000 tonnes of firewood in the first nine months of 2017 but this could be produced by just 8,000 ha of managed broadleaved woodland (Harris 2019). Guidance on silviculture of bringing woodlands back into management is available (Evans 1989; Kerr and Evans 1993) as well as information on harvesting and methods of working (ETSU 1995; Forest Research 1995; 2003). See Annex-6/ERAMMP Report-38: *Economics and Natural Capital Accounting* for further discussion relating to wood fuel, markets and forest management and the complex link to climate mitigation.

An added benefit of home-grown timber is that imported timber poses a biosecurity risk (Brasier 2008) and has been the source of damaging agents such as Dutch elm disease, the Great Spruce Bark beetle and Asian Longhorn beetle. The economic cost of each of these pests has not been assessed but Williams et al. (2010) estimated that the total current annual cost of Invasive Non-Native Species (INNS) to the British economy to be £1.7 billion. So it's possible that the main economic benefit of bringing woodlands back into management are associated with biosecurity rather than the market value of the timber.

2.2.2 Environmental

The environmental impacts of having so much unmanaged woodland are well described by Plantlife (2011), from which this quote is taken:-

'So why are England's woodlands losing their life and vitality? They aren't being bulldozed, concreted over or burned down – they are still standing and you can still walk through them. The simple answer is that too many of our woods are neglected, mismanaged or under-managed. This is the major threat to their plant life and to the other wildlife that depends on a rich woodland flora. Overgrazing by a soaring deer population and nutrient enrichment from atmospheric pollution compound the problem.'

An interesting example of this is Lady Park Wood that was established in 1944 in the gorge of the river Wye in Monmouthshire (Peterken and Mountford 2017). At its inception it was agreed there would be no interventions in the reserve in an attempt to observe and understand the character of 'natural woodland'. Throughout its history there has been a reduction in species diversity and in conservation terms the reserve is now rated 'unfavourable, declining'. This is thought to be due to excessive and

'unnatural' levels of deer grazing. The lack of any corrective action of this pressure has led to a decline in woodland condition. Conversely, in other adjacent woodlands, the absence of any grazing by fencing has also been detrimental leading to excessive bramble and bracken. In humid woodlands on acid soils with invasive Rhodedendron no action leads to increased shading and diversity loss. In all three examples, corrective action was needed to allow natural processes to emerge. What we have learned from Lady Park Wood is that if we want diverse functioning woodland, for multiple objectives, some interventions are likely to be required (Kerr and Mason 2019); this agrees with studies from North America (Oswald 1997) and so is well accepted.

2.2.3 Social

Managed woodlands can provide better landscapes, have greater amenity value and can confer significant health and wellbeing value to people (Independent Panel on Forestry 2012). The woodlands that people value are not an accident of nature but the product of careful, skilled and professional management, often over many generations. That said some management actions can detract from their amenity value if only temporarily e.g. clearfelling. (See Annex-5/ERAMMP Report-37: *Ecosystem Services* - Section 3 on cultural ecosystem benefits for more details).

2.3 Risks

The main risk is that an assumption is made that increasing the area of managed woodland is easy and can be achieved quickly; this is not the case. Lawrence (2018) reviewed the evidence on the effectiveness of initiatives that attempted to increase wood mobilisation from forests as part of the EU-funded project SIMWOOD (Sustainable Innovative Mobilisation of Wood). The review concluded that: (1) there is a need to focus less on surveys of constraints and more on real-life interventions and their success or otherwise; (2) more could be learnt from the experience of such interventions if evaluations were published; (3) successful interventions are multifaceted (often combining incentives and advice, or farming and forestry, or production and markets) and (4) although experience can be shared effectively between regions, interventions must be tailored to local social, biophysical and political conditions and developed in context.

It is well accepted that there are minimal risks to biodiversity from the recommencement of management in neglected forests as many authorities agree that broadleaved woodlands are at their most ecologically diverse when canopy cover is well below 100% (Harmer et al. 2010; Peterken and Mountford 2017). However, this assumes we are managing for diversity but in any one wood it could be a small group of rare species that are the focal interest. The main risks are to species that thrive in shaded environments and that are associated with deadwood; however, both of these habitats can be preserved with a professional approach to management as advocated by Harmer et al. (2010). Some also highlighted the increased risk after about 100 years when gaps are likely to appear from natural processes and there is a risk of taking veteran trees out of the system. Any wider

risks of mis-management or clearance of forests are mitigated through legislation that define the maximum amount of timber removal from a forest in a given time period.

In addition, there are added risks due to:

Woodland size - more than 40% of woodland in England (no comparable data are available for Wales) is owned in parcels of less than 20 ha and can be uneconomic for conventional woodland operations. Most native woodlands in Wales are small and fragmented and set within an intensively managed landscape (Russell et al. 2011). Fragmentation of ownership in continental Europe is managed through a tradition of cooperatives. There is limited evidence this can work in the UK because, as yet, there are few established cooperatives. The minimum size of woodland that is 'economic' is difficult to determine as there are so many factors involved. However, Broad (1998) in *Caring for small woods* considers 'small' to be 10 ha or less.

Access - some unmanaged woodland is on difficult terrain with no access roads to extract timber and woodfuel. In the absence of attractive grants and potentially greater collaborative working (e.g. in enabling access across land from adjacent landowners) to build access roads, management of these woods is uneconomic.

Finance - Timber and woodfuel prices are currently higher than they have been for many years (Forestry Commission 2019) but the operating returns for broadleaved woodlands are modest compared to other land uses and many land managers view woodland as low priority. The Royal Forestry Society (2019) are also of the opinion that Government grants have become increasingly unattractive, restrictive and unfavourable to sustainable woodland management. Experience from social enterprises suggest alternative thinking may be needed as the biggest returns from small woodlands may be as venues for delivery of social and well-being services. This is somewhat dependant on proximity to people and on market saturation. The need to partner service-providers (e.g. bushcraft operations) with location means it is not available to everyone - but there are more ways of making money from a small managed woodland than selling wood.

Skills - A report commissioned by the RFS in 2017 identified a severe shortage of forestry contractors especially in southern England. The hardwood supply chain has a high proportion of sole traders who are undercapitalised with limited capacity to respond to growing demand for harvesting and processing operations. The result is that land managers can struggle to secure contractors particularly for small and more complex operations.

2.4 Behavioural

A study by Eves et al. (2015) found that 37% of the woodland owners could be defined as "Aspiring Managers" who tend to be new to woodland ownership, open to becoming more engaged, but seeking support and guidance on where to get started. However, 17% of those surveyed were identified as "Disengaged Conservationists", mostly small woodland owners, who believe woods are better left unmanaged.

3. REFERENCES FOR ANNEX-2

ADAS (2015) Review of Land Use Climate Change. An assessment of the evidence base for climate change action in the agriculture, land use and wider foodchain sectors in Wales. Available at: https://gov.wales/sites/default/files/publications/2018-02/climate-change-land-use-review.pdf

Brasier, C.M. (2008) The biosecurity threat to the UK and global environment from international trade in plants. Plant Pathology, 57:792-808.

Broad, K. (1998) Caring for small woods. Earthscan publications Ltd., London.

ETSU (1995) Fuel-wood from undermanaged woodland. ETSU Report B/M4/00487/30/REP. Available at: https://www.osti.gov/etdeweb/servlets/purl/176253

Evans, J. (1989) Small woods: neglected asset. Forestry and British Timber, March 1989, p21-22.

Eves, C., Johnson, M., Smith, S., Quick, T., Langley, E., Jenner, M., Richardson, W., Glynn, M., Anable, J., Crabtree, B., White, C., Black, J., MacDonald, C., and Slee, B. (2014). Analysis of the potential effects of various influences and interventions on woodland management and creation decisions, using a segmentation model to categorise sub-groups - Volume 1: Summary for Policy-Makers. Defra, London.

Forest Research (1995) Harvesting in undermanaged woodlands: an initial investigation. Technical Note 26/95. Forest Research, Ae Village, Dumfries, DG1 1QB.

Forest Research (2003) Woodfuel production from small, undermanaged woodlands. Technical Development Information Note ODW 12.02. Forest Research, Ae Village, Dumfries, DG1 1QB.

Forestry Commission (2019) Forestry Statistics 2019. Viewed 27 February 2020. <www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/>.

Harmer, R., Kerr, G. and Thompson, R. (2010) Managing Native Broadleaved Woodland. Forestry Commission Handbook. The Stationary Office Ltd (TSO), Edinburgh, UK.

Harris, E. (2019) The fickle gods of the hearth. Forestry and Timber News, June 2019, p38-39.

Independent Panel on Forestry (2012) Independent Panel on Forestry: Final Report. Viewed 14 February 2020. <https://www.gov.uk/government/groups/independent-panel-on-forestry>

Kerr, G. and Evans, J. (1993). Growing broadleaves for timber. Forestry Commission Handbook 9. HMSO, London.

Kerr, G. and Mason, W.L. (2019) A History of Silviculture in Britain in, Gambles, I. (ed.). British Forests: The Forestry Commission 1919-2019. Profile books, London.

Lawrence, A. (2018) Do interventions to mobilize wood lead to wood mobilization? A critical review of the links between policy aims and private forest owners' behaviour. Forestry, 91(4):401-418.

Oswald, B.P. (1997) Understanding change in managed and unmanaged forests. Forestry Ecology and Management, 114(2-3):169-487.

Peterken, G. and Mountford, E. (2017) Woodland Development: A Long-term Study of Lady Park Wood. CABI Publishing, Oxford.

Plantlife (2011) Forestry Recommissioned: Bringing England's woodlands back to life. Plantlife, Salisbury.

Royal Forestry Society (2019) Bringing woodland into management. The missed opportunity in England and Wales. January 2019. Royal Forestry Society. Available at:

https://www.rfs.org.uk/media/552717/woodland-management-missed-opportunities-in-england-and-wales.pdf

Russell, S., Blackstock, T., Christie, M., Clarke, M., Davies, K., Duigan, C., Durance, I., Elliot, R., Evans, H., Falzon, C. and Frost, P. (2011) Status and changes in the UK's ecosystems and their services to society: Wales in UK National Ecosystem Assessment Technical Report (pp. 979-1044). UNEP-WCMC, Cambridge.

Welsh Government (2016) Woodlands for Wales Indicators 2015-16. Welsh Government, Cardiff.

Williams, F., Eschen, R., Harris, A., Djeddour, D., Pratt, C., Shaw, R. S., Varia, S., Lamontagne-Godwin, J., Thomas, S. E. and Murphy, S. T. (2010) The economic cost of invasive non-native species on Great Britain. CABI Publishing, Oxford.

Other documents in this report series (in Report/Annex order):

Beauchamp, K., Jenkins, T.A.R., Alison, J., Bathgate, S., Bell, C., Braban, C., Broome, A., Bursnell, M., Burton, V., Dickie, I., Doick, K.J., Evans, C.D., Fitch, A., Griffiths, R., Hall, C., Healey, J.R., Jones, L., Keith, A.M., Kerr, G., Kuyer, J., Maskell, L.C., Matthews, R.W., Morison, J., Nicoll, B., Nisbet, T., O'Brien, L., Old, G.H., Pagella, T., Perks, M.P, Robinson, D.A., Saraev, V., Smart, S.M., Smith, A.R., Siriwardena, G.M., Swetnam, R., Thomas, A.R.C., Tye, A., Valatin, G., Warren-Thomas, E.M., Wong, J. & Emmett, B.A. (2020). Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP). ERAMMP Report-32: National Forest in Wales - Evidence Review. Report to Welsh Government (Contract C210/2016/2017)(UK Centre for Ecology & Hydrology Project 06297)

Beauchamp, K., Alison, J., Broome, A., Burton, V., Griffiths, R., Keith, A.M., Maskell, L.C., Siriwardena, G. & Smart, S.M. (2020). Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP). ERAMMP Report-33: National Forest in Wales - Evidence Review Annex-1: Biodiversity. Report to Welsh Government (Contract C210/2016/2017)(UK Centre for Ecology & Hydrology Project 06297)

Kerr, G. (2020). Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP). ERAMMP Report-34: National Forest in Wales - Evidence Review Annex-2: Managing Undermanaged Woodland. Report to Welsh Government (Contract C210/2016/2017)(UK Centre for Ecology & Hydrology Project 06297)

Beauchamp, K., Bathgate, S., Burton, V., Jenkins, T.A.R., Morison, J., Nicoll, B. & Perks, M.P. (2020). Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP). ERAMMP Report-35: National Forest in Wales - Evidence Review Annex-3: Future-proofing our Woodland. Report to Welsh Government (Contract C210/2016/2017)(UK Centre for Ecology & Hydrology Project 06297)

Matthews, R. (2020). Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP). ERAMMP Report-36: National Forest in Wales - Evidence Review Annex-4: Climate Change Mitigation. Report to Welsh Government (Contract C210/2016/2017)(UK Centre for Ecology & Hydrology Project 06297)

Beauchamp, K., O'Brien, L., Hall, C., Dickie, I., Swetnam, R., Jenkins, T.A.R., Doick, K.J., Nisbet, T.R., Old. G., Evans, C.D., Nicoll, B., Jones, L., Braban, C., Robinson, D.A., Burton, V, Tye, A., Smith, A.R., Pagella, T. & Perks, M.P. (2020). Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP). ERAMMP Report-37: National Forest in Wales - Evidence Review Annex-5: Ecosystem Services. Report to Welsh Government (Contract C210/2016/2017)(UK Centre for Ecology & Hydrology Project 06297)

Saraev, V., Beauchamp, K., Bursnell, M., Fitch, A., Kuyer, J., Thomas, A., Dickie, I., Jones, L., Valatin, G. & Wong, J. (2020). Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP). ERAMMP Report-38: National Forest in Wales - Evidence Review Annex-6: Economics and Natural Capital Accounting. Report to Welsh Government (Contract C210/2016/2017)(UK Centre for Ecology & Hydrology Project 06297)

Emmett, B.A., Beauchamp, K., Jenkins, T.A.R., Alison, J., Bathgate, S., Bell, C., Braban, C., Broome, A., Bursnell, M., Burton, V., Dickie, I., Doick, K.J., Evans, C.D., Fitch, A., Griffiths, R., Hall, C., Healey, J.R., Jones, L., Keith, A.M., Kerr, G., Kuyer, J., Maskell, L.C., Matthews, R.W., Morison, J., Nicoll, B., Nisbet, T.R., O'Brien, L., Old, G.H., Pagella, T., Perks, M.P, Robinson, D.A., Saraev, V., Smart, S.M., Smith, A.R., Siriwardena, G.M., Swetnam, R., Thomas, A.R.C., Tye, A., Valatin, G., Warren-Thomas, E.M. & Wong, J. (2020). Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP). ERAMMP Report-39: National Forest in Wales - Evidence Review Annex-7: Integrated Assessment. Report to Welsh Government (Contract C210/2016/2017)(UK Centre for Ecology & Hydrology Project 06297)

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