Forestry England

Forestry England Board Meeting Agenda

25 September 2019 8.45 -11.15

Richmond Room, Willington Hall

Attendees
Forestry England Board: Ian Gambles, Julia Grant, David Hodson, Peter Latham, Jennie Price, Gurch Randhawa, Mike Seddon, Sir Harry Studholme (Chair) **Apologies:** **In attendance:** Alan Harrison, James Simpson, Hayley Skipper **Secretariat:** Rachel Mackintosh

NO. / TIME mins	Start time	ITEM (Materials)	OUTCOME REQUIRED	LEAD
Welcome				
1. 10 mins	8.45	Chair's Welcome Declarations of Interest Approval of minutes and matters arising	Approval	Chair
Ongoing Management				
2. 30 mins	8.55	CEO report	Discussion & note	Mike Seddon
3. 20 mins	9.25	Performance report Focus on: Being an Outstanding Organisation	Discussion & note	Mike Seddon
4. 20 mins	9.45	Director of Finance Report	Discussion & note	David Hodson
Items for Approval				
5. 30 mins	10.05	Forestry England recreation model	Approval	Hayley Skipper
6. 30 mins	10.35	Plant and seed supply	Approval	James Simpson / Alan Harrison
7. 5 mins	11.05	Appointments to the Arboreta Advisory Committee	Approval	Mike Seddon
Concluding items				
8. 5 mins	11.10	AOB		Chair

Forestry England

Future meetings:

8th October 2019	*Centenary event at Bedgebury Pinetum – no Board meeting*
9th December 2019	*Centenary tree planting at Eggesford, Devon (with overnight)*
10th December 2019	Devon (location TBC)
13th February 2020	National Office, Bristol
22nd April 2020	North District (with 2 overnights 21 -23 April)
4th June 2020	Bristol tbc

Papers:

Item 1: Forestry England Board Minutes 17.7.19 with action log

Item 2: 2.1 CEO report September 2019
2.2 Forestry England Natural Capital Account 2018-19

Item 3: 3.1 Forestry England Scorecard for September 2019

Item 4: 4.1 Forestry England Finance Report to August 2019

Item 5: 5.1 Forestry England Board paper _ Recreational Model September 2019

Item 6: 6.1 Forestry England Board paper _ Developing Plant and seed supply operations September 2019

Item 7: 7.1 Forestry England Board paper_ Appointments to the Arboreta Advisory Committee 2019

Forestry England

Forestry England board meeting minutes

25 September 2019 8.45 - 11.15am

Willington Hall, Delamere

Attendees
Forestry England Board: Ian Gambles, Julia Grant, David Hodson, Peter Latham, Jennie Price, Gurch Randhawa, Mike Seddon, Sir Harry Studholme (Chairman) **Attendees:** James Simpson, Alan Harrison (part), Hayley Skipper (part) **Secretariat:** Rachel Mackintosh

Agenda topics

1. Welcome | Item Lead: Harry Studholme

The Chairman welcomed members to the third meeting of the Forestry England board.

Declarations of Interest
No declarations made

Approval of 17.7.19 Board minutes
Minutes approved.

All matters arising

- No.10 New KPIs were being looked at across the Forestry Commission. It was confirmed that this meant that the existing ones would be included in the 2019/20 Annual Report.
- No.11 A small development was being used as a vehicle to take forward the energy generation proposal.

2. CEO report | Item Lead: Mike Seddon

Mike Seddon, in his first meeting as CEO drew the Board's attention to the following key developments since the last meeting:

- The forestry minister remains Zac Goldsmith
- Following approval of the land acquisition strategy in May an update on projects in progress was provided. These have been funded by capital, and also include receipts from the A11 where land was lost and is being replaced.
- In response to Board questioning it was confirmed that all land acquisitions are a matter for the Chief Executive. Those over 50ha need ministerial approval, otherwise Defra director level can approve, the land title being registered to the Secretary of State.
- A bid to Defra for a five year project for woodland creation and forestation is being prepared which, if granted, would contribute to government targets in this area.

- The Sunday Mirror/People are running a series of articles on walks in our forests.
- ITN have commissioned a 4 part series following a forest through the seasons, being filmed in Kielder Forest.
- In September Westonbirt hosted the Defra Group Leaders in a visit as part of their meeting, the first time this meeting has been held outside of London.
- The contract has been signed for the Delamere Visitor Centre, this is the largest capital development project undertaken by the organisation to date.

The non-executives updated the Board on their engagement since the last meeting, all non-executives reported on the outstanding staff they have met in every forest they have visited:

- Gurch: has visited Grizedale privately and Kielder for Custody Code. He noted the value of the individuality of the forests within the Forestry England brand, and shared thoughts on audience segmentation, increasing diversity of visitors and future-proofing the next generation.
- Jennie: has been back to Alice Holt and on a forest holiday. She also shared key learning from the Canals and Rivers Trust following the incident at Whaley Bridge.
- Julia: met with Andy Venn at Alice Holt to discuss the capital programme. They looked at repeatable model from Alice Holt experience to get high value / low cost.
- Peter: has visited the new café at Wendover Woods.

Mike presented the CEO's report that included:

- A discussion on business area updates since the last meeting focused on:
    - The spike in correspondence around hunting,
    - Seedling supply,
    - Quality achieved through the Centenary programme; including the stamps, celebrating 227 members of staff participating in a 10K run, and publication of British Forests book.
- The health & safety report discussion focused on
    - the structure of Health & Safety management
    - the management of the health threat posed by ticks.

Action Items	Person responsible	Deadline
Mike to provide the work done on audience segmentation and marketing to different audiences to the Board	Mike Seddon	10/12/19
James to confirm if tick removal is treated as first aid provided at forest centres.	James Simpson	10/12/19

3. Performance Reporting Development

Mike Seddon presented the performance indicators, with a deep dive into the Being an Outstanding Organisation objective. The following discussion covered appropriateness and value of the measures, areas where the Board would like additional information / commentary and the methods and effectiveness of the cascade of information from the Board to the rest of the organisation.

Action Items	Person responsible	Deadline

Include pipeline of land acquisition projects with size of the estate figures	John Stride / Mike Seddon	10/12/19

4. Director of Finance Report | Item Lead: David Hodson

David Hodson presented Board paper 4 with figures to the end of August. The discussion focused on the forecast for the price of timber and current volumes despatched. It was agreed that the December report would give a better indication of the trends for the year and the discussion would be picked up again then and in context of draft financial plans for 20/21 onwards.

5. Recreational Model | Item Lead: Hayley Skipper

Hayley presented a paper setting out the new recreational model for the Board's approval. The discussion focused on the legacy of the model and how it would future proof the offer for future diversity of visitors, the risks and mitigations in adopting the model, and how it helped prioritise decision making. The Board approved the model and looked forward to seeing the delivery strategy in the future.

6. Plant and seed supply Item Lead: James Simpson / Alan Harrison

James presented the paper on the approach to plant and seed supply, noting that it followed on from the Resilience paper presented in July. The paper highlighted the priority areas for developing plant and seed supply. The Board discussed how developing the operation could impact the sector, and how they contributed to government targets and priorities. The Board approved the approach and priorities as outlined.

7. Appointments to the Arboreta Advisory Committee 2019

The Board approved the appointment of Professor Nicola Spence, and the re-appointment of David Knott and Gavin Grant to the Arboreta Advisory Committee.

AOB

The Board discussed the proposal from Gurch to explore opportunities to support the increase in the diversity of visitors to the nation's forests. The Board agreed that Gurch and Sir Harry should make some first approaches and advise the Board on the response received.

Action Items	Person responsible	Deadline
Initial approaches to be made to inter-faith communities and reported back to the Board	Sir Harry Studholme / Prof. Gurch Randhawa	10/12/19

Meeting closed 11.15am
Followed by a visit to the Lobslack Nursery and Delamere Forest Centre.

Next meeting: 10 December, Eggesford, combined with the Centenary tree planting on 9th December.

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Agenda Item 2 | Forestry England Board 25 September 2019 | Board Paper 2.1

Paper Title: CEO Report

Under the freedom of information act 2000, exempt information this paper has been withheld from publication as per Section 43(2): Prejudice to commercial interests.

If you wish to request this paper please contact Rachel Mackintosh at Rachel.mackintosh@forestryengland.uk

Forestry England

Natural Capital Account

2018-19

Bedgebury. Credit: David Jenner.

Contents

Front cover photo: Child playing with pine cones in Moors Valley Forest. Credit: Carolyn White

Wenchford picnic site by Blackpool Brook in the Forest of Dean. Credit: Johnny Hathaway.

Welcome

One hundred years ago, the Forestry Commission was founded with the primary purpose of rebuilding the nation's timber reserves following depletion during World War I. Now in our centenary year, we care for around a quarter of a million hectares of land under the name of Forestry England. We harvest around 7.75 million trees for use in everything from home building to furniture-making. Our nurseries produce 16 million new trees to replant and create new areas of woodlands. These same forests are close to communities and form iconic landscapes for people to enjoy and wildlife to flourish.

The nation's forests help clean our air and our rivers. They keep people healthy by being open and accessible for all kinds of exercise and enjoyment including more adventurous activities like camping and climbing. They provide local employment through businesses small and large, and they provide the material and context for the scientific research we rely on to improve our understanding of these amazing places.

This is our fourth annual natural capital account. The natural capital accounting process allows us the opportunity to step back and reflect: the account itself is a single point of reference for all the benefits provided by our forests. We work with partners to generate this account, looking deeper into the forests to see how wildlife is fairing, trees are growing and people are connecting with them. It isn't always possible to attach a monetary value to these benefits, but where we can, over time, we can start to see trends which can help to support our decision-making.

The annual costs of looking after the nation's forests are far outweighed by the benefits and only made possible by the expertise and hard work of our widely dispersed and diverse workforce, partners and volunteers, who can be found in our forests rain or shine.

The nation's forests continue to give so much to society, and this account shows how Forestry England is delivering on its promises: to grow the natural capital value of these forests for wildlife to flourish, people to enjoy and business to grow. This natural capital account updates you on our final year as Forest Enterprise England, our natural capital journey so far, and what the future holds for the nation's forests and for us as Forestry England.

Mike Seddon, Chief Executive

Who we are – **Forestry England**

We are the single largest land manager in England, caring for more than 250,000 hectares of land. It is not surprising then that we manage an impressive variety of habitats: from conifer plantations to ancient oak woodlands, upland peat bogs, moorland and heathland, coastal margins and community forests in urban areas.

Our forests can be found from the Scottish border, where we look after Kielder Forest – the largest planted forest in northern Europe – to the New Forest's patchwork of open habitats and ancient woodland on the shores of the English Channel. From where our first seedlings were planted 100 years ago at Eggesford in Devon, to Thetford Forest on the sands of East Anglia: the majority of our woodlands offer freely open access for people to enjoy.

We want to connect everyone with the nation's forests – we do this by managing our land with the aim of increasing the social, economic and natural capital that it provides us all, whether we visit once a day or once a year. This means that we would like to get even more people coming to our forests: whether this is just for a day visit – which also helps support the wide range of businesses across our entire estate – or volunteering in their local woods, helping care for the infrastructure and habitats in our forests.

Each part of our estate has its own unique history, wildlife and habitats, and the map opposite illustrates our geographic spread, as well as the sheer size of our forests. Kielder Forest, Thetford Forest, the New Forest and the Forest of Dean are our four largest forests, and can be found in our North, East, South and West Districts respective. Whereas Kielder Forest is largely upland sitka spruce amongst peat bogs, Thetford Forest has more pine and open habitats on much flatter ground. The New Forest and the Forest of Dean are different again, both with pockets of ancient woodland, open habitats and timber plantations among small villages and towns.

Although these four are the largest individual forests, they still only represent a part of our entire estate. Our national office is based in the city of Bristol; we have community woodlands near London, Liverpool and Manchester; and we manage the renowned arboretum at Westonbirt, internationally famous for its autumnal scenes, and Bedgebury Pinetum, dedicated to conifers.

We manage all of this land with a little over a 1,000 committed staff with a huge variety of skills and expertise, from foresters and wildlife rangers to administrators and IT specialists, ecologists, engineers and projects managers. We, along with our growing force of volunteers and partners work hard to make the best of the nation's forests from seedling to sawmill, and from concerts to carbon sequestration, for the next 100 years and beyond.

The non-native muntjac deer makes much of south and central England its home, and is one of the deer species we control as part of our wildlife management programme. Credit: Mark Lane

What Is natural capital accounting?

Natural capital accounting is a way of measuring and valuing the benefits that ecosystems and the natural world provide to society.

This is as a complement to financial accounting (annual accounts) which provides information about an organisation's financial position, profitability, cashflow and changes in equity.

The value of a habitat such as woodland is more than that of the timber sold in the marketplace – trees sequester carbon, helping us fight climate change. They clean the air of pollution and they mitigate flooding as well as cleaning our water. Woodlands also provide habitats for important pollinating insects, mammals, birds and rare reptiles. They do these and many other things that lack a market value, but nonetheless have significant value.

The natural capital value represents how much these benefits are worth to society. This could mean estimating how much people are willing to pay for these benefits, how much it would otherwise cost to provide these benefits, or the costs of mitigating the impacts of not providing them.

As an example, see the opposite page for a brief description of how we value carbon sequestration.

The exact way of valuing each ecosystem service varies, but for all of them we are interested in the long-term view and not simply what it looks like today. We make sure our statement is forward-looking as well as accounting for the present by including estimates for expected future physical flows. For example, we model future tree growth across our estate, and then we can estimate how much carbon we are likely to sequester in 10, 15 and 50 years' time.

We include these future physical flows in our natural capital accounts after applying standard economic principles about how people think about the value of money over time. This is because people tend to prefer having something now rather than in the future, i.e. we value today more highly than tomorrow. We apply a 'discount rate' to the value of future years' flows, but at reduced levels further into the future in order to recognise the importance to future generations. This means we are able to balance our needs today with those of our children and grandchildren.

How do we know what carbon is worth?

In an ideal world we would know the precise social cost of carbon. This is the cost to society caused by each unit of carbon emitted now, summed up across its entire lifetime in the Earth's atmosphere. However, in practice, the estimates of this cost vary widely due to difficulties in quantifying how our complex meteorological and environmental systems react to changes in atmospheric carbon through time. Small changes in models' assumptions can result in huge differences in estimated costs.

Because of this, the UK government has adopted an alternative approach for valuing carbon sequestration – the 'marginal abatement cost'. This is the cost to polluters (e.g. cars, industry, energy generation) of reducing greenhouse gas emissions by any given amount, in this case to meet targets under the UK Climate Change Act. The uncertainties around calculating this are still difficult to overcome, but to a far lesser extent than for calculating the social cost.

The value we use for our accounts is £67.25 per tonne of carbon dioxide sequestered for the first year, which is updated every year to reflect the growing costs of further reducing carbon dioxide emissions. To get to our headline natural capital value for carbon sequestration in our forests, we multiply the current year's sequestration by the current carbon dioxide value, and do the same for the next 50 years based on expected sequestration, and then further into perpetuity. All future values are discounted to the present to provide a total 'present' value.

All of our ecosystem services are valued on the same basic principles.

Natural capital accounts

Our annual natural capital accounts (NCAs for short) are a way for us to summarise and present the value of the societal benefits provided by the nation's forests in a transparent and straightforward way. This year's natural capital asset value – which is still incomplete and partial as it doesn't include many important ecosystem services – is £26.1 billion, against a baseline 2013/14 value of £17.7 billion. Our account is about being open about what we're doing and promoting the good work we do.

There are two main strands to our natural capital accounts: one is valuing ecosystem services, and the headline summary for this can be found in the Balance Sheet (pages 8-9). The other is the asset register, which is a list of all of the habitats, resources, plants, animals and infrastructure that is in forests, and cannot yet be valued.

The balance sheet is based on the physical and monetary flow accounts (pages 22 and 23), which show the ecosystem service flows for the current year. The physical flow account shows the ecosystem flows in terms of the relevant physical units – whether that's cubic metres of timber produced each year, or millions of visits to our forests. The monetary flow account is about the valuation put on these figures: the value of the 1.58 million tonnes of carbon sequestered this year, or the value of our mineral production.

It is possible to see the physical flows increase while seeing the monetary flow decrease (or vice versa), for example, if we produced less timber, but the value of timber per unit sold increased. It is more common, though, to see the two flows move together given that the per-unit price for most ecosystem flows remains relatively stable. Things like timber and wild food production are exceptions here simply because they are sold on the open market and their value is more volatile.

For a more detailed explanation of how the accounts are put together, please read the appendices at the back of the document (page 28).

Balance sheet

This is a breakdown of the balance sheet, reporting asset values into perpetuity for each natural capital benefit. It draws together the headline values reported under each of the monetary account schedules and the maintenance cost schedule.

The balance sheet only represents those parts of the natural capital value of the nation's forests that can currently be both measured in quantity, and where that quantity of physical benefit flow can be given a monetary value. This excludes many of the benefits we know our land provides, for example flood mitigation or improvement of air quality. So the values in this balance sheet are highly conservative estimates of the net natural capital asset value.

Notes included opposite.

Notes:

a. Whole page: Price values in 2018/19 are £m in present value terms, rounded to the nearest £1m.

b. Whole page: Present values are calculated as discounted flow of annual value in perpetuity. A 3% discount rate is used. Annual values are forecast over 50 years and from year 51 to perpetuity it is assumed that the annual value is constant (i.e. a constant flow assumption).

c. Private value of assets is to Forest Enterprise England, external value of assets is to the rest of society.

d. The baseline value represents the value of assets at the baseline date (31 March 2014 where possible).

e. Cumulative gains/losses show the net change in asset values (compared to the baseline date). The change is normally due to a change in the condition of the assets, either through natural improvement/ deterioration or through management intervention.

f. Additions show the increase in asset values associated with the acquisition, realisation or discovery of new assets since the baseline date.

g. Disposals disclose the reduction in asset values associated with the disposal or extraction (for non-renewable resources) of natural assets.

h. Revaluations and adjustments calculate the asset value changes arising from changes in external factors and key assumptions (e.g. market prices).

i. Baseline data 2015-16 when Forest Enterprise England started regular surveying for visitor numbers.

j. Payment from central government for the provision of ecosystem services.

k. Total gross asset values are for the reporting year (2018/19) and are calculated after the deduction of production costs (i.e. value of benefits minus costs of production) as reported in the monetary account. This is shown as a flow of private benefit into Forest Enterprise England, but the same value is repeated as a cost to society in the external value flows.

l. Maintenance costs include the cost of all legal obligations and other activities necessary to preserve the long term output of the natural assets at the benefit levels assumed in the asset values section of the balance sheet.

	Private value[c]					External value[c]					Total Value				
	Baseline[d]	Cumulative gains/losses[e]	Additions[f]/ disposals[g]	Revaluations/ adjustments[h]	Reporting year (2018/19)	Baseline[d]	Cumulative gains/ losses[e]	Additions[f]/ disposals[g]	Revaluations/ adjustments[h]	Reporting year (2018/19)	Baseline[d]	Cumulative gains/ losses[e]	Additions[f]/ disposals[g]	Revaluations/ adjustments[h]	Reporting year (2018/19)
	PV £m					PV £m					PV £m				
Non-renewables															
Minerals	4	-	(4)	-	-	-	-	-	-	-	4	-	(4)	-	-
Total non-renewables	4	-	(4)	-	-	-	-	-	-	-	4	-	(4)	-	-
Renewables															
Timber	271	36	-	206	513	-	-	-	-	-	271	36	-	206	513
Food	-	(5)	-	-	(5)	-	-	-	-	-	-	(5)	-	-	(5)
Plants and Seeds	-	-	-	-	-	14	(4)	-	-	10	14	(4)	-	-	10
Carbon sequestered	-	-	-	-	-	7,237	1,096	-	1,418	9,751	7,237	1,096	-	1,418	9,751
Recreation and public access[i]	(270)	184	-	-	(86)	11,030	4,679	-	602	16,311	10,760	4,863	-	602	16,225
Total renewables	1	215	-	206	422	18,281	5,771	-	2,020	26,072	18,282	5,986	-	2,226	26,494
Government payment for ecosystem services funding[j]	513	-	-	-	513	(513)	-	-	-	(513)	-	-	-	-	-
Total gross asset value[k]	**518**	**215**	**(4)**	**206**	**935**	**17,768**	**5,771**	**-**	**2,020**	**25,559**	**18,286**	**5,986**	**(4)**	**2,226**	**26,494**
Maintenance costs[l]	(428)	50	-	-	(378)	(31)	(31)	-	(4)	(66)	(459)	19	-	(4)	(444)
Total net natural capital assets	**90**	**265**	**(4)**	**206**	**557**	**17,737**	**5,740**	**-**	**2,016**	**25,493**	**17,827**	**6,005**	**(4)**	**2,222**	**26,050**

Asset register

Key

↑	Increase	Changes that are planned and welcome
↔	Small change	Small change or change of little strategic import
↓	Decrease	Changes that are unplanned or unwelcome

Habitats – extent

Indicator			Baseline year	Reporting year (2018/19)	Trend	% change	Units
Ecological communities and species							
Extent	Broad and priority habitat area		Full list of priority habitat areas given in S1.1				
	Broad habitat area[1]	Woodland area	207,876	204,851	↔	-1.5%	ha
		Grassland area	12,748	14,434	↑	13.2%	ha
		Mountain, moors and heathlands area	28,564	28,624	↔	0.2%	
		Enclosed farmland	724	752	↑	3.9%	
		Freshwater	265	260	↔	-2.0%	
		Urban area	742	706	↓	-4.9%	
		Coastal margins area	17	17	↔	0.0%	
		Total area	250,936	249,644	↔	-0.5%	
	Priority habitat within our estate[2]	Broadleaved, mixed and yew woodland	22,757	23,050	↔	1.3%	ha
		Lowland dry acid grassland and lowland heath	14,628	14,642	↔	0.1%	
		Other priority grassland	522	581	↑	11.3%	
		Lowland raised bog	782	782	↔	0.0%	
		Blanket bog	6,793	6,814	↔	0.3%	
		Upland heathland	6,881	6,706	↔	-2.5%	
		Other	364	368	↔	1.0%	
		Total area	52,727	52,943	↔	0.4%	
	Woodland area[3]	Plantation	165,192	166,677	↔	0.9%	ha
		Native	37,897	35,271	↓	-6.9%	
		Non-intervention	13,275	13,292	↔	0.1%	
		Wood pasture	735	735	↔	0.0%	
	Total land area holdings	Freehold	198,883	200,980	↔	1.1%	ha
		Leasehold	53,341	50,955	↓	-4.5%	
		Total area	252,223	251,935	↔	-0.1%	
	Total agricultural land use[4]		3,345	7,277	↑	117.5%	ha
	Area land under statutory designations (SSSIs, AONB, SAM, NP)		147,823	148,125	↔	0.2%	ha
	Area of priority open habitat		42,844	42,044	↔	-1.9%	ha

The tables opposite list the habitats that we manage and their sizes. Although we are primarily known for our forests and forestry, around a fifth of our land is not actually wooded. This non-woodland is mostly grassland and uplands, but also covers coastal areas, enclosed farmland and 'urban areas', which are our buildings and infrastructure.

The tables also show how much of our land falls under different types of priority habitat. Priority habitats are defined as those which are most under threat and in need of conservation according the UK Biodiversity Action Plan year (UK BAP). The term covers natural and semi-natural states, and the tables opposite show that Forestry England has large land holdings across many of the categories, which range from open habitats such as grassland and heath to native woodlands of broadleaves and yews.

Most of the numbers on the page opposite change slowly – or not at all – year to year. This is simply due to the slow rate of land transfers across our estate as a whole, though it is worth nothing that we manage less land than we did in 2013/14 – by 1.5%. That decline is largely due to leasehold agreements coming to their end: we actually own 1.7% more land than we did in our baseline year. Some of the changes in habitat extent are driven by reclassification of land type, say from woodland to grassland.

Forestry England continues to be the largest single land management organisation in the country, with over 250,000 hectares under our stewardship.

The large change in agricultural land use from the baseline year is driven by a reclassification of some upland heathland due to ongoing management. Although the change is substantial, it has no impact on our strategic goals or priorities.

Around 60% of our land fits under some form of statutory designation, from Areas of Outstanding Natural Beauty (AONBs) and National Parks, to Scheduled Monuments (SMs) and Sites of Special Scientific Interest (SSSIs). This includes everything from managed habitats for the rare smooth snake in Dorset (SSSI), to pre-Roman hill forts and Anglo-Saxon features (SMs) which are spread across the whole of England. These figures have not changed much over the last six years and are unlikely to change substantially in the near future.

Notes:

1. The PAWS and open habitats policies continue to impact on woodland area with other broad habitat changes mostly being reclassification or landholding change related. Because the woodland area change is small in percentage terms it is not RAG rated as a decline. Decrease in enclosed farmland, and increase in grassland, mountain, moors and heathland categories is due to land transactions in SW England.
2. Priority habitats continue to increase modestly or see little change in area according to PAWS and open habitat policies being implemented via the forest plans.
3. Recording change, not actual change. Our recording system has in the past had areas assumed to be native woodland which on re-survey have been found to be less native than was assumed.
4. Reclassification of some upland heathland to agricultural land use due to their ongoing management results in this unusual increase this year. Although a substantial increase, this has no impact on Forest Enterprise England's achievement of its strategic priorities.

Habitat – condition and composition

Indicator				Baseline year	Reporting year (2018/19)	Trend	% change	Units
Ecological communities and species								
Extent	Broad and priority habitat area			Full list of priority habitat areas given in S1.1				
	PAWs - area by semi-naturalness score[5]	1 (over 80% native)		8,261	9,835	↑	19.1%	ha
		2 (between 50 to 80% native)		3,332	3,739	↑	12.2%	ha
		3 (between 20 to 50% native)		5,765	5,831	↔	1.1%	
		4 (under 20% native)		27,252	22,349	↓	-18.0%	
		0 (no trees)		993	942	↓	-5.1%	
		Total area		44,610	41,754	↓	-6.4%	
	ASNW – area by semi-naturalness score	1 (over 80% native)		11,513	10,113	↓	-12.2%	ha
		2 (between 50 to 80% native)		940	2,433	↓	158.9%	
		3 (between 20 to 50% native)		694	571	↑	-17.7%	
		4 (under 20% native)		1,362	2,092	↓	53.6%	
		0 (no trees)		707	650	↑	-8.1%	
		Total area		15,216	15,859	↓	4.2%	
	Condition of SSSIs[6]	% in favourable condition		35.6	37.39	↑	5.0%	%
		% in unfavourable recovering condition		63.9	61.22	↓	-4.2%	
		% in unfavourable no change or declining condition		0.5	1.39	↑	178.0%	
		% part destroyed or destroyed condition		-	-	↔	0.0%	
Condition	Site condition of non-SSSI priority woodland habitat[7]	Ancient and semi-natural woodland	Favourable	1,422	1,422	-	-	%
			Recovering	2,667	2,667	-	-	
			Declining	170	170	-	-	
			Unfavourable	763	763	-	-	
			Not known	92	92	-	-	
		Priority ancient woodland	Favourable	2,061	2,061	-	-	
			Recovering	10,850	10,850	-	-	
			Declining	1,364	1,364	-	-	
			Unfavourable	791	791	-	-	
			Not known	14,793	14,793	-	-	
		Broadleaved (non-ancient woodland)	Favourable	3,130	3,130	-	-	
			Recovering	7,634	7,634	-	-	
			Declining	1,077	1,077	-	-	
			Unfavourable	1,898	1,898	-	-	
			Not known	2,458	2,458	-	-	
Condition	Site condition of non-SSSI priority wood-land habitat	Wood pasture	Favourable	283	283	-	-	%
			Recovering	192	192	-	-	
			Declining	0	0	-	-	
			Unfavourable	260	260	-	-	
			Not known	0	0	-	-	
		Non-intervention	Favourable	679	679	-	-	
			Recovering	1,352	1,352	-	-	
			Declining	330	330	-	-	
			Unfavourable	573	573	-	-	
			Not known	10,340	10,340	-	-	
	Site condition of non-SSSI non-woodland habitat	Open	Favourable	1,679	1,679	-	-	
			Recovering	3,582	3,582	-	-	
			Declining	1,176	1,176	-	-	
			Unfavourable	738	738	-	-	
			Not known	175	175	-	-	

As well as habitat extents, we are of course interested in their conditions and composition, the details of which can be found opposite and above.

PAWS (Plantation on Ancient Woodland Sites) and ASNW (Ancient or Semi-Natural Woodland) are two very important habitat categories for us, both being categories of ancient woodland i.e. woodland that has continuously existed since 1600AD in England. PAWS are those that were once native woodland, but which are no longer, ASNW are those which are of more natural origin, though they may have been managed or even felled at some point in the past.

The tables here detail the changes in 'semi-naturalness' of these woods. That is, how many hectares are in each category of 'semi-natural' state, from the worst (4: under 20% natural) to the best (1: over 80% natural). A decline in the lower categories, and an increase in the higher categories are both positives, and usually go hand in hand. A patch of woodland may over time move from 'under 20% natural' towards 'over 80%' over a few decades. Changes may also be down to land sales and purchases.

We also show the breakdown of our SSSIs (Sites of Special Scientific Interest) by condition, which are assessed by Natural England (NE). These figures are very slow to change due to the slow-changing nature of habitat condition. Some sites that we own will not see a substantive movement from one condition category to another for another 20 years, simply because it takes that long to see an improvement in, say, bog or heath condition.

The non-SSSI habitat conditions follow the same principles as the SSSI sites, but are assessed internally. These figures are also unlikely to change significantly or quickly, again due to the slow-changing nature of most habitats.

Notes:

5. The PAWS policy implemented predominately by thinning continues to impact negatively on SN4 conifer and positively on SN1, 2 and 3, as native species become dominant.

   The decline in area for 'under 20% native' is a positive change as it is in accordance with the plan towards minimal non-native forest composition.

6. Although there has been a large percentage change in 'unfavourable' category, this represents only a very small area, and has therefore been RAG rated amber rather than red.

7. No trend arrows are indicated because the baseline data was collated in 2016/17, and has not yet been updated. Management systems are being put in place to ensure the condition is reviewed and updated as a regular part of land management activity, and trend data will be recorded at this point.

Ecology and Biodiversity

	Indicator		Baseline year	Reporting year (2018/19)	Trend	% change	Units
Condition	Ecological communities and species						
	Broad and priority habitat area						
	Woodland ecological calculator index[8]						
	Deadwood volume (native woodland)		6.0%	-	-	-	% ha favourable
	Vertical structure (native woodland)		42.0%	-	-	-	% ha favourable
	Ground flora (native woodland)		9.0%	-	-	-	% ha favourable
	Veteran trees (native woodland)		0.0%	-	-	-	% ha favourable
	Nativeness of occupancy (native woodland)		89.0%	-	-	-	% ha favourable
	Invasive species (native woodland)		95.0%	-	-	-	% ha favourable
	Tree pests and diseases (native woodland)		89.0%	-	-	-	% ha favourable
	Herbivores/grazing pressure (native woodland)		49.0%	-	-	-	% ha favourable
	Regeneration at component group level (native woodland)		20.0%	-	-	-	% ha favourable
	Number of native tree/shrub species (native woodland)		46.0%	-	-	-	% ha favourable
	Age distribution of tree species (native woodland)		18.0%	-	-	-	% ha favourable
	Proportion of open space (native woodland)		5.0%	-	-	-	% ha favourable
	Proportion of woodland/open habitat (native woodland)		76.0%	-	-	-	% ha favourable
	Size of woodland parcel (native woodland)		97.0%	-	-	-	% ha favourable
	Regeneration at population level (native woodland)		41.0%	-	-	-	% ha favourable
	Overall ecological condition score (native woodland)		18.0%	-	-	-	% ha favourable
	Overall ecological condition score (non-native woodland)[9]		0.5%	-	-		% ha favourable
	Selected taxa indices	Butterflies - Abundance[10]	70	61	↓	8.7%	Index
		Birds - Abundance[11]	105	113	↑	7.6%	
		Birds - Richness[12]	27	31	↑	12%	Species per square kilometre
	Deer management	Fallow	3,347	3,440	↔	2.8%	-
		Muntjac	2,228	2,725	↑	22.3%	-
		Red	554	447	↓	-17.8%	-
		Roe	4,967	5,201	↔	4.7%	-
		Sika	301	328	↔	9.0%	-
		Boar	196	352	↑	79.6%	-
		Chinese water deer	-	1	↑	-	-
		Total	11,583	12,494	↔	7.9%	-

Our forests provide habitats for a huge range of plants, animals and fungi, and we are always looking to develop a better understanding of how well we are managing the nation's forests for biodiversity. In some cases this will mean using our own internal data – we have some internal monitoring programmes that have been running continuously since the 1960s. But in others, we work with relevant conservation organisations to build this better understanding.

The page opposite shows our latest developments in understanding the ecology and biodiversity of the nation's forests. In partnership with both the British Trust for Ornithology and Butterfly Conservation, we have developed indices for birds and butterflies). Our previous accounts included, for the first time, indicators on general ecological condition, which are reproduced here. They are updated once every five years unlike most information we include here, so haven't changed since our last account.

Also on this page is a species breakdown of large mammal (deer and boar) populations which we control as part of our wildlife management programme. These cull counts are not about showing populations sizes across our forests, but are included to illustrate the breadth of deer species that can be found across our estate and the size of our wildlife management programme. All of the native and non-native species that can be found in the UK as a whole can be found on our land: from the recently introduced muntjac, to the native red deer.

Deer in particular can cause huge amounts of damage both to the ecological condition of woodlands (for example through over-browsing), and to the economic value of our timber (through bark stripping and browsing), and so their populations need to be controlled. For a more detailed explanation, see page 27. The deer and boar figures have been RAG rated uniformly as amber, as there is no specific strategic requirement to either increase or decrease population control.

Notes:

8. This set of indices was new last year and developed by the National Forest Inventory Project. There are 16 indices showing the detailed condition of our native woodlands, as well as an overall ecological score for our non-native woodlands. These indicators will be reported on a five-year basis, and so only the baseline year is available here. 'Favourable' here is defined as 'requires no work', and the remaining percentage as 'room for improvement', within which are the conditions 'intermediate' and 'unfavourable'.

9. It is worth noting that 99% of our non-native woodlands are in 'intermediate' condition, and less than 1% are in 'unfavourable'.

10. This butterfly index shows relative abundance, and uses 1993 as baseline for all species, not just woodland specialists (100). Butterfly indices show a decline across the whole of England.

11. This woodland specialist bird index shows relative abundance, and uses 1994 as baseline (100).

12. Number of bird species found in each square kilometre of the nation's forests on average. Standard error is 0.79 for 2013 and 0.74 for reporting year.

'The Custody Code' in Alice Holt, by Amanda Loomes. Credit: Forestry England

Soil, Air and Carbon

Indicator			Baseline year	Reporting year (2018/19)	Trend	% change	Units
Ecological communities and species							
Condition	Broad and priority habitat area						
	Carbon stock in... [13]	...living biomass	12,397	13,160	↑	6.2%	Thousand metric tonnes
		...deadwood and litter	-	-	-	-	
		...soils	-	-	-	-	
	CO_2e Stock in...	...living biomass	45,456	48,253	↑	6.2%	Thousand metric tonnes
		...deadwood and litter	-	-	-	-	
		...soils	-	-	-	-	
	Biomass stock...	...total above and below ground	24,794	26,503	↑	6.9%	Thousand metric tonnes
		...above ground	19,295	20,618	↑	6.9%	
		...below ground	5,499	5,885	↑	7.0%	
		...in deadwood	-	-			
	Standing timber volume (overbark standing)[14]	Coniferous	26,148	26,743	↔	2.3%	Thousand m3
		Broadleaved	8,147	9,920	↑	21.8%	
Soil							
	Area of woodland on deep peat soil - higher yield (above YC 6)		14,128	14,191	↔	0.4%	ha
	Area of woodland on deep peat soils - low yield (below YC 6)		4,147	2,833	↓	-31.7%	ha
	Area of woodland on shallow peat soils and peaty pockets - higher yield (above YC 6)		41,909	41,078	↔	-2.0%	ha
	Area of woodland on shallow peat soils and peaty pockets - low yield (below YC 6)		7,614	7,035	↓	-7.6%	ha
Air							
	Area of woodland in areas of differing air quality	Urban	18,134	18,199	↔	0.4%	ha
		Peri-urban	27,601	28,104	↔	1.8%	ha
		Rural	205,464	206,086	↔	0.3%	ha

Notes:

13. This represents the carbon stored in our forests. This is distinct from the assessment of carbon dioxide (equivalent) flows from our forests that are assessed in the physical and monetary accounts.

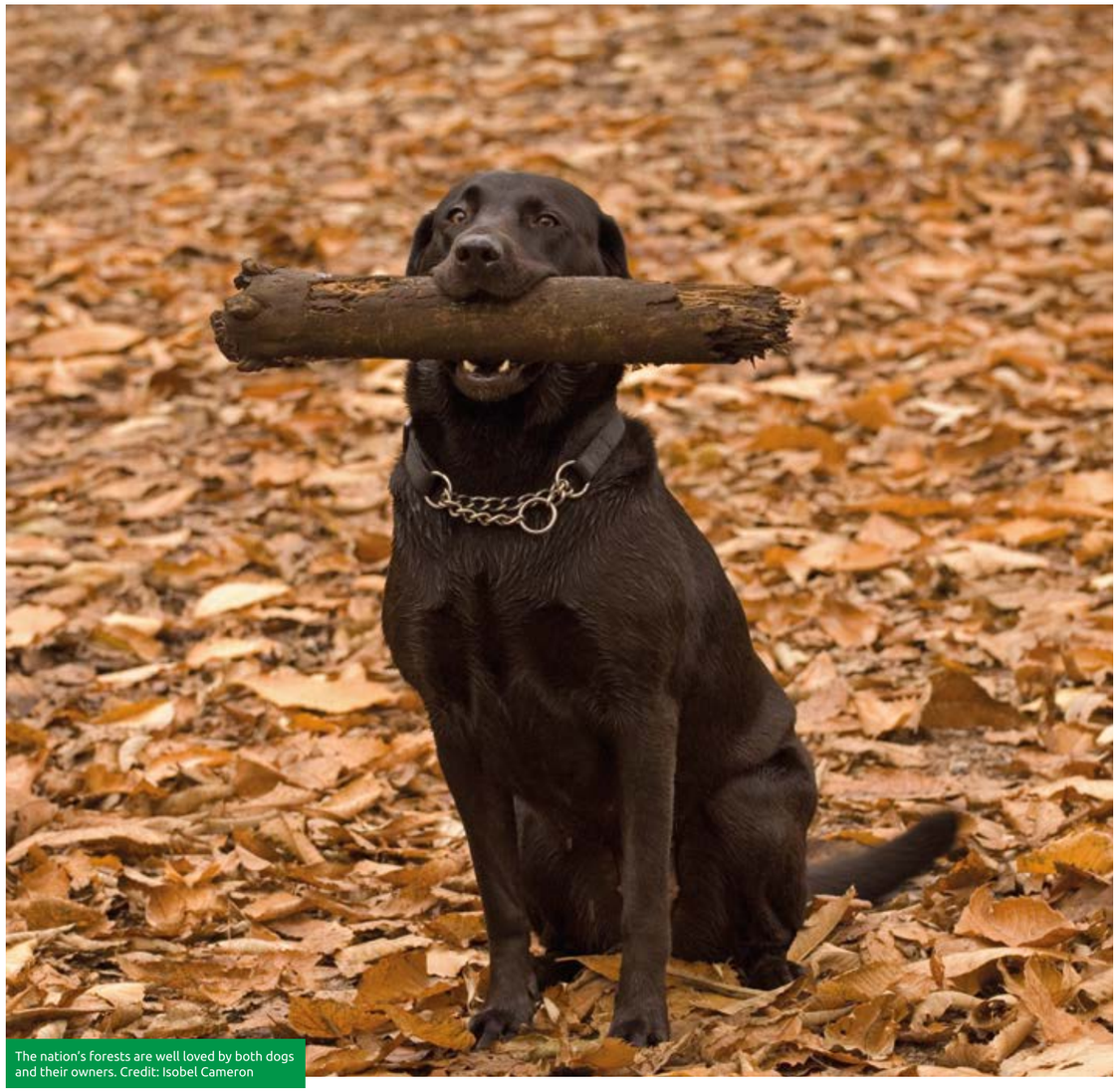
14. 'Overbark standing' is a standard timber measurement term meaning that the volume is measured including the bark, but excluding small branches, foliage and deadwood.

Our natural capital accounting is currently limited by the science available: this means that we are not able to robustly measure or value the impact our forests have on air quality, or of developing a comprehensive picture of our soils, whether that's in terms of biodiversity, general health or carbon sequestration.

Until we are better able to quantify how our forests clean our air, we are using the proxy shown opposite, which details the spatial distribution of our woods in the context of urban, rural or peri-urban areas.

We are, however, able to measure how much carbon is sequestered and stored in our woods. You'll find annual carbon sequestration in our physical flows page (page 22), and opposite you will find the breakdown of our woodland carbon stock. This figure represents the carbon stored in both above ground tree biomass (the trunk, branches and leaves), as well as the below ground biomass (roots). This has increased over the last six years by 6.2%.

We are looking to include estimations for the carbon stock of our forest soils – as well as deadwood and litter – in next year's account. Soils are huge global carbon sinks, and so any carbon accounting is incomplete without it.



The nation's forests are well loved by both dogs and their owners. Credit: Isobel Cameron

Wellbeing, recreation and access

Indicator			Baseline year	Reporting year (2018/19)	Trend	% change	Units
Woodland accessibility							
Broad and priority habitat area							
Percentage of people in 'priority places' close to accessible Forestry England woodland			9.0	9.0	⟷	0.0%	%
Percent England population within 6 miles of all Forestry England land			49.1	48.4	⟷	-1.4%	%
Percent England population within 15min, 30min and 60min drive time to accessible Forestry England sites		15 minutes	40.3	39.3	⟷	-2.5%	%
		30 minutes	85.8	85.0	⟷	-0.9&	%
		60 minutes	99.9	99.9	⟷	0.0%	%
Recreation and wellbeing							
Area of land by accessibility status		CRoW access	149,940	148,380	⟷	-1.0%	ha
		Other accessibility based on deeds	85,730	87,478	⟷	2.0%	ha
Km of published recreational routes across the estate		Total	2,859	2,895	⟷	1.3%	km
		Walking	1,095	1,095	⟷	-	km
		Cycling	1,303	1,303	⟷	-	km
		Other (e.g equestrian, rally)	497	497	⟷	-	km
Active Forests[15]							
Gender of visitors[16]		Female	507,128	507,128	-	-	-
		Male	492,800	492,800	-	-	-
		Other	1,898	1,898	-	-	-
		Unknown	25,511	25,511	-	-	-
Activities		Cycling	318,164	318,164	-	-	-
		Running	174,017	174,017	-	-	-
		Walking	298,572	298,572	-	-	-
		Other	236,584	236,584	-	-	-
Total			1,027,337	1,027,337	-	-	-

Notes:

15. Number of visits for cycling and walking have been adjusted down to account for introduction of counters at many forest sites that likely capture visits not associated with the Active Forests programme. Numbers presented are considered a conservative estimate.

16. This figure is an estimate based on total survey responses across all years of programme being averaged across all activities and forest sites.

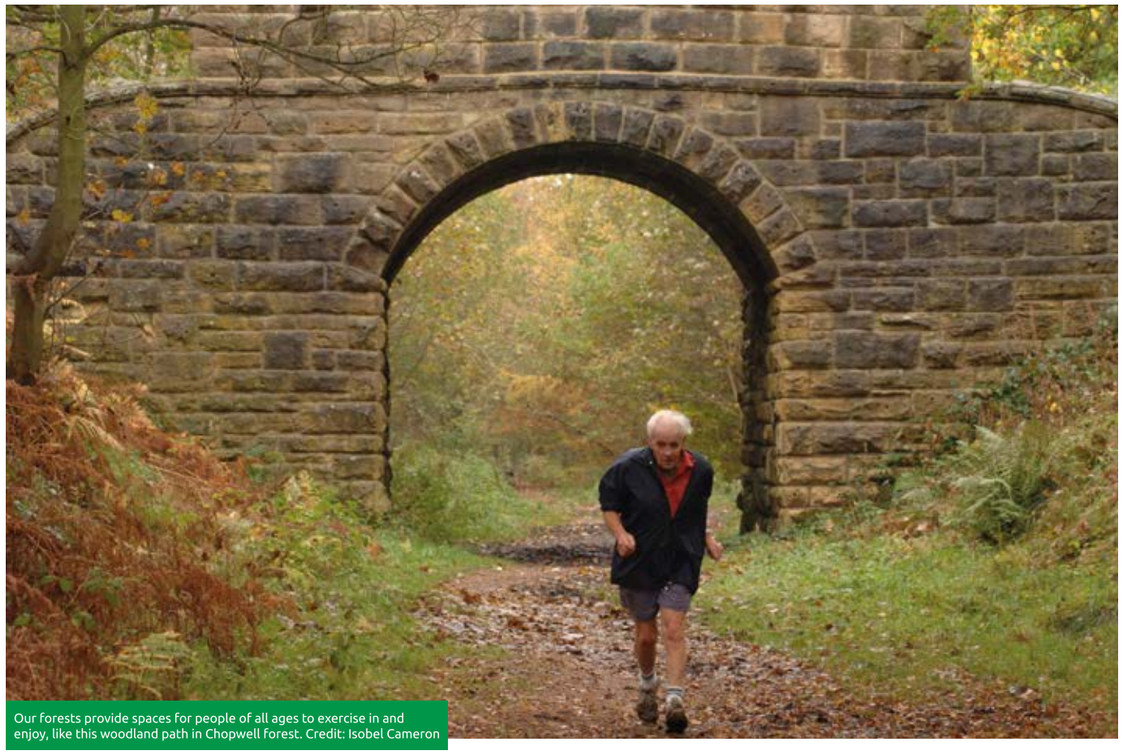
The nation's forests offer recreational space for millions of people each year. From mountain biking, running, horse riding, and camping, all the way to live concerts and art installations, our forests are as culturally diverse are they are ecologically.

The tables opposite detail some of the recreation infrastructure in our forests, as well as other key wellbeing and access indicators. Woodland accessibility is very important to us, and is calculated by modelling traffic, road placement and type alongside the known population distribution of England in relation to all of our forests, in order to work out what proportions of the population live within different drive-times of our forests. This is of great strategic importance to us, as we aim to connect everyone with the nation's' forests.

As you can see from the table, 99.9% of England's population lives within 60 minutes' drive of at least one of our forests, which could be either a small community managed woodland, or a larger forest like Cannock Chase or Thetford Forest. These figures will only change significantly if our landholdings also change significantly: this is because populations themselves are generally static, our forests are already geographically widespread and road infrastructure also changes at a slow rate.

The Active Forests programme is about making it easier for people to adopt and maintain an active and enriching lifestyle, which evidence shows leads to improved mental and physical health. It was piloted for three years from 2014, then rolled out more widely, now supporting 18 sites, four of which are located in urban areas. The figures here have 2018-19 as their baseline year, and are included to illustrate the level of engagement in our wellbeing programmes, as well as the diversity of our offer. As well as walking, running and cycling – which compose the majority of Active Forests visits – these figures include orienteering, ball sports, racket sports, shooting, and core and strength exercises (under the category 'other' on the opposite page).

There is an aspiration to be able to value the contribution of this programme in terms of Quality Adjusted Life Years (QALYs) and associated health care cost reductions, which would mean it would be included as a physical flow. This is not yet possible, so we simply include it here in the asset register.



Our forests provide spaces for people of all ages to exercise in and enjoy, like this woodland path in Chopwell forest. Credit: Isobel Cameron

Ecosystem service flows

The two flow accounts on the following pages show the flows of annual natural capital benefits produced by the nation's forests and other habitats in both the baseline and current year. This includes ecosystem services that occur naturally – such as carbon sequestration – and those that arise due to the work of Forestry England– such as timber production.

These accounts are limited to listing those benefits that can be measured and quantified so far. Things like air quality improvement and flood mitigation are very important but not yet easily quantified across our entire estate, though we hope to one day include them.

Whereas the physical flow account reflects the unvalued ecosystem flows – for example tonnes of carbon dioxide sequestered – the monetary flow account puts an economic value on these benefits, based on a combination of market values, academic research and damage mitigation costs.

The two largest flows in monetary terms here are recreation visits and greenhouse gas sequestration. We get our recreation visits and visitors figures from an online survey sent to over 2,000 people four times a year, who are generally representative of the English population. They are asked a series of questions around their woodland visit habits and from this we develop a model that estimates how many visits we receive each year.

As you can see from the table, this figure can vary quite a lot from year to year subject to people's recreation habits, which depend upon weather, the economy and other variables. We have seen a 42% increase since we started measuring visitors.

Carbon sequestration flows are less variable, and though we have seen a slight decrease in the amount of carbon sequestered this year against baseline, we have at the same time seen a significant increase in the per-tonne carbon value. Given that the amount of greenhouse gas (GHG) emissions from woodland on deep peat soils has decreased, this means that the monetary flow from sequestration has increased over the last six years. It is important to note here that all GHG emissions are netted off by expressing them all in terms of the same 'language': Carbon Dioxide Equivalents. Bogs, for example, are net emitters of GHGs in the form of methane, nitrous oxide and carbon dioxide, depending on their condition.

'Carbon embodied in environmental goods' refers to the carbon stock in timber that leaves our estate each year. It does not take into account what the subsequent use is, and in order to avoid double counting alongside the carbon sequestered figure, does not contribute to the monetary account or the balance sheet.

Children playing in the Forest of Dean. Credit: Johnny Hathaway

Water voles are one of many rare or endangered species that can be seen in our woods. This one was found in Kielder Forest. Credit: Lyle McCalmont

Physical flow account

This table reports the flow of annual natural capital benefits that are produced in the nation's forests for the baseline year and the reporting year. This includes production by Forest Enterprise England itself, contractors and tenants. It is relevant to report all these aspects because total (annual) production relates to Forest Enterprise England management decisions.

This physical flow account is only a partial reflection of all the benefits produced by the nation's forests because we are not yet able to quantify many of them, for example improving air quality and mitigation of flooding are not yet measured here.

Spacial accounting by natural capital benefit	Indicator	Units	Baseline year	Reporting year
			2013/14	2018/19
Timber provision				
Woodland	Total timber production across our forests	m^3/yr	1,522,967	1,420,209
Climate regulation[a]				
Woodland	Carbon sequestered/(emitted)	tCO_2/yr	1,645,657	1,575,633
Bogs			(8,717)	(8,752)
Grassland			-	-
Heathland			-	-
Woodland on deep peat soils			(82,908)	(77,232)
Woodland	Carbon embodied in environmental goods (timber)[b]	tCO_2/yr	1,033,351	1,250,357
Recreation				
Whole estate	Visits	visits/yr	165,000,000	235,000,000
	Visitor	visitors/yr	21,000,000	26,900,000
	Volunteers	hours/yr	201,337	209,099
Plant and seed supply				
Whole estate	Plant production number	number/yr	14,961,000	10,659,000
	Seed production weight	kg/yr	-	-
Food provision				
Whole estate	Wild game carcass numbers	number/yr	11,586	12,494
	Livestock production from tenant farmers	number/yr	7,309	6,298
	Crop production from tenant farmers	kg/yr	381	597
Minerals				
Whole estate	Mineral production volume	tonnes/yr	1,295,850	1,313,408

Notes:

a. All GHG emissions are grossed out by expressing them all in terms of the same 'language': Carbon Dioxide Equivalents. Bogs on the nation's forests, for example, are net emitters of GHGs in the form of methane, nitrous oxide and carbon dioxide, depending on condition. Bogs on our estate are assumed to be 75% near natural and 25% modified.

b. Carbon embodied in environmental goods does not represent a release of carbon to the atmosphere. It represents carbon locked up in harvested timber, which leaves the estate for commercial uses in the reporting year. It does not include non timber biomass (such as brash and roots), which is left on site after felling. This flow is of a slightly different nature to the other flows in the accounts, as it does not take into account what that subsequent use is, and in order to avoid double counting alongside the carbon sequestered figure, does not contribute to the monetary account or the balance sheet.

Monetary flow account

This table collates the estimated total annual value (£) of natural capital benefits that are produced from the nation's forests in both the baseline year and the reporting year. These values are calculated after the deduction of production costs (but not maintenance costs, which cannot be attributed to individual benefits but are netted off the gross value of assets in the balance sheet R1).

Spacial accounting by natural capital benefit	Indicator	Units	Baseline year	Reporting year
			2013/14	2018/19
Timber provision				
Woodland	Net asset value for timber produced	£/yr	£11,109,669	£17,016,086
Climate regulation				
Woodland	Carbon sequestration value	£/yr	£98,739,421	£105,955,243
Bogs			£(523,001)	£(588,560)
Grassland				
Heathland				
Woodland on deep peat soils			£(4,974,455)	£5,193,568
Recreation				
Whole estate	Net asset value for recreation	£/yr	£346,308,992	£522,232,396
	Volunteers	£/yr		
Plant and seed supply[b]				
Whole estate	Plant and seed revenues	£/yr	£3,091,288	£3,230,965
Food provision				
Whole estate	Wild game carcass value[c]	£/yr	£12,677	£(143,052)
	Livestock production value	£/yr	-	-
	Crop production value	£/yr	-	-
Minerals				
Whole estate	Mineral sales value	£/yr	£896,060	£443,787

Notes:

a. The monetary account reports the value to the reporting entity (private value from rents) and to wider society (external value from the direct consumption of benefits only). It does not include the indirect or 'downstream' value to farmers and aggregates/timber contractors from the sale of their produce. This is because these sales are based on decisions outside of the control of Forest Enterprise England and exist further along the value chain. Values reported above are the sum of annual private and external value.

b. Our plant and seed sales are counted as a benefit to society as the actual value of plants and seeds is much higher than their sale value when they are sold at cost of production.

c. Although the number of wild carcasses has increased against baseline, the huge decline in wild boar value from £2.50 in October 2017 to £0.75 in November 2017, as well changes in FEE venison contracts, has meant the revenues to Forest Enterprise England have fallen sharply alongside an increase in the cost of production. Wild game income is a by-product of culling for forest management purposes, rather than done primarily for profit.

Maintenance of the nation's forests

Our forests have maintenance costs: from legal maintenance obligations (those related to health and safety or managing statutorily designated land), to infrastructure such as roads and drains.

These costs have been netted off against the natural capital values of individual ecosystem services where possible. For example, the costs of our timber operations or of running our recreation centres. Those that cannot be directly attributed are still included in the balance sheet on pages 8-9.

Part of the maintenance of the nation's forests is done by volunteers. Without their hard work the benefits provided would otherwise not be realised across our estate. If they didn't give their time, then we would either have to pay contractors to deliver equivalent work, or not do the work (more likely, as volunteers often do work in places inaccessible by machine which would otherwise be too expensive), in which case there would be a lower monetary account value.

A wide variety of fungi can be found in the nation's forests, including the delicious chicken of the woods (Laetiporus sulphurous). Credit: Forestry England.

Feral boar and piglet in the Forest of Dean, where the largest boar population in England lives. Credit: Forestry England.

Wildlife management as maintenance

One of the many things that we do to look after our forests is wildlife management. This means managing the populations of large grazing mammals (deer and boar) to minimise the damage they cause.

When deer populations are in equilibrium with their environment, they are a key part of a healthy ecosystem. However, populations have increased hugely over recent decades. This is due to a lack of predators; lynx, wolves and bears which would have once been abundant in the UK.

This is also due to the abundance of food –populations are artificially inflated by the abundance of crops across the landscape. In many areas, wild deer populations are now larger and denser than would exist in a wholly natural ecosystem. This leads to a range of environmental problems - a significant proportion of Sites of Special Scientific Interest are in unfavourable condition due to excessive deer impacts such as browsing of native flora.

People have created this imbalance in the ecosystem by manipulating the landscape over millennia. By managing deer populations, we are replacing predation.

Some of the costs of our wildlife management programme are included alongside all of the maintenance costs in the balance sheet, but you will also see a line in the physical and monetary flows for 'wild food' which represents the value of our wild game sales. This is because although we primarily conduct our programme for maintenance purposes, it is also a significance ecosystem flow as high-quality food provision.

Due to the volatilities in the price for both venison and boar, the income from these sales is quite variable: it is often less than the costs of wildlife management, and so only partly mitigates the financial cost. In some years, though, (for example, 2013/14), the income exceeds expenditure.

Whether we make a profit on our wild food production or not, the overall value of managing these mammal populations far outweighs the private costs. Although we are currently unable to quantify or value the impacts of deer and boar on our habitats and timber production, we know that uncontrolled populations would wreak economic and ecological havoc nationwide, the costs of which are much greater than the costs of our programme, or those of other organisations.

Controlling boar and deer populations means controlling the impact these grazing mammals have on the condition of the nation's forests and their ability to continue providing their benefits.

Appendix 1:

An introduction to natural capital accounting for Forestry England

What is natural capital?

Natural capital refers to the stock of natural assets upon which our economy and society is built. Natural capital produces value for people in the form of goods such as timber or minerals, and services such as climate regulation and air purification.

Sometimes people need to intervene to best realise the benefits - such as recreation - but in other instances, production is simply the result of natural capital combining with natural processes - as with woodland carbon sequestration.

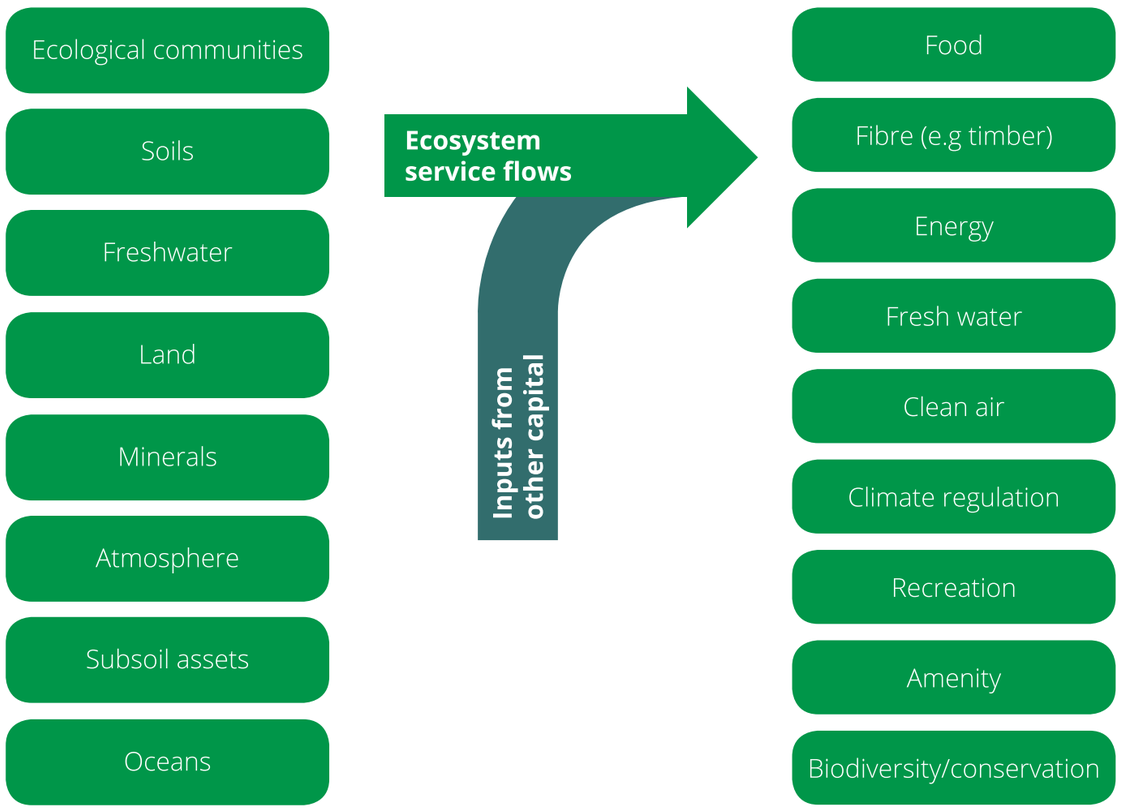


Fig 1: Diagram showing the flow of natural capital benefits that come from natural capital.

Appendix 1

Why develop a natural capital account for Forestry England?

Forestry England's continuing development of natural capital accounting remains at the forefront of the practical application of the concept, both in the UK and internationally. Back in 2015/16, it was the first organisation-wide account by anyone responsible for such a large base of natural capital, and we aim to stay at the cutting edge.

Developing our natural capital account will:

- Further complement our current reporting on the environmental, social and economic outcomes that are delivered by our estate.
- Demonstrate the societal value delivered by England's woods and forests and the management of them by Forestry England.
- Inform decision making at all levels by clearly linking management with the value of our natural capital assets.
- Assess our decision making's impact on natural capital values, in both the long term and short term.

Over time, as this picture develops further, Forestry England will be able to use the natural capital account to assess how our management of the nation's forests affects its natural capital value.

Children and adults alike can enjoy getting their hands dirty while enjoying nature and wildlife in our woods. Credit: John MacFarlane

Time horizon

The natural capital account framework presents a forward-looking perspective for understanding the value of natural capital assets. This is because the purpose is to provide information in an accounting format that can inform strategic and business decisions concerning ongoing and future management of natural capital, with the aim of safeguarding the health and condition of natural assets into the future. This requires reporting the long-term value of natural capital assets and liabilities.

Consistent with the natural capital account framework, natural capital asset values in the account are calculated at a discounted rate of the expected future values into perpetuity. Discounting means we can compare the costs and benefits that occur in the future at today's prices. It is based on the principle that, generally, people prefer to receive goods and services now rather than later, while also ensuring that future generations are considered.

In Forestry England's account we base this on:

- **Profiling/forecasting values over 50 years.** This time period has been selected since it is consistent with the time horizon of the forest design plans that set the management objectives for each forest block. It aligns with data availability from the sub-compartment database, which is used to estimate timber and carbon flows over time.
- **A residual value assumed beyond 50 years.** This is an assumption that the level of provision from the last year of the forecast period into the future will remain steady with regards to costs and benefits.

The profile of costs and benefits over time are discounted at the social discount rate (3.5% declining to 3% after 30 years) as detailed in the HM Treasury Green Book. Use of the social discount rate to calculate present values, reflects the strategic objectives of balancing social, economic and environmental outcomes

Structure of the account

The NCA framework is structured around four accounting schedules and reporting statements that draw on, and organise the financial and environmental management data which forms the basis of the natural capital account.

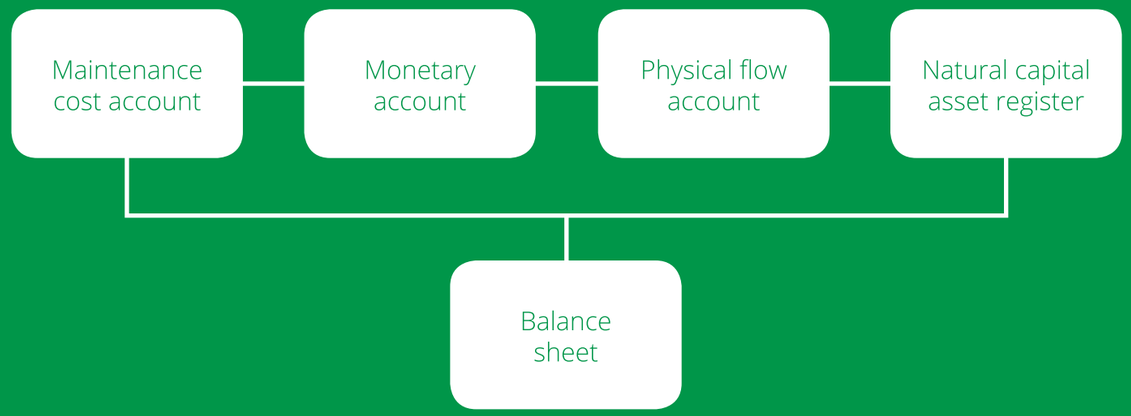


Fig 2: Forestry England's natural capital account structure
The schedules each have a different focus which come together and make up the overall account. The purpose of each of the schedules is described in the next section.

Forestry England natural capital account structure

Natural capital asset register

The asset register is an inventory of the quantity and condition of our natural capital assets. Changes in these metrics over time help us understand the capacity of England's public woods and forests to produce benefits into the future. The asset register can be used as a tool in its own right to monitor the trends of natural capital assets; this is particularly useful while the account is being developed, before all of our assets can be fully represented as a monetary figure.

Physical flow account

The physical flow account records the volumes of ecosystem service flows from the nation's forests. It covers both market (for example, the amount of timber in cubic metres) and non-market (like the amount of tonnes of carbon sequestered) goods and services. These figures are the basis for subsequently calculating the value of those flows (in the monetary account).

Maintenance account

The costs that are attributable to producing specific goods and services have been netted off against revenues from those goods and services in the monetary account, but there are substantial other costs involved in managing the public forest estate; for example, managing some of our forests to an environmental standard that is above the standard required for timber production.

The maintenance cost account shows the money needed to manage the natural capital assets of the estate so that the value of the natural capital assets does not decline in the long-term.

Monetary account

The monetary account is where the annual value of the goods and services flowing from England's woods and forests is reported. It records both the private value - in terms of Forestry England's revenue from marketed goods and services such as timber - and the external value to wider society from non-market goods and services such as recreation. Both values are netted off, with the cost of producing the benefit removed.

For example the cost of timber harvesting activity is deducted from the total revenue generated. This is so that only the value which comes from natural capital is reported, rather than value generated by other inputs. This is why some of the figures in the monetary account appear different to those reported in the financial annual report and accounts.

We are only able to include benefits in our monetary account where there is a robust evidence-base for allocating a value. For example, for recreation we have based our valuation on the results of a study by Willis et al (2003) which gives a value for recreational visits to woods and forests. Because research work has not yet been undertaken for all natural capital benefits, we are unable to include everything in the monetary account, which is why Forestry England's (and anyone's) natural capital account at present is a partial account.

Our forests are very popular for recreational visits of all types. Wyre Forest. Credit: John MacFarlane

Appendix 1

Natural capital balance sheet

The natural capital balance sheet is essentially the 'front page' reporting statement of the account: the total net natural capital assets figure is the figure that shows overall value. It provides an overall summary of the inputs from the four reporting schedules including:

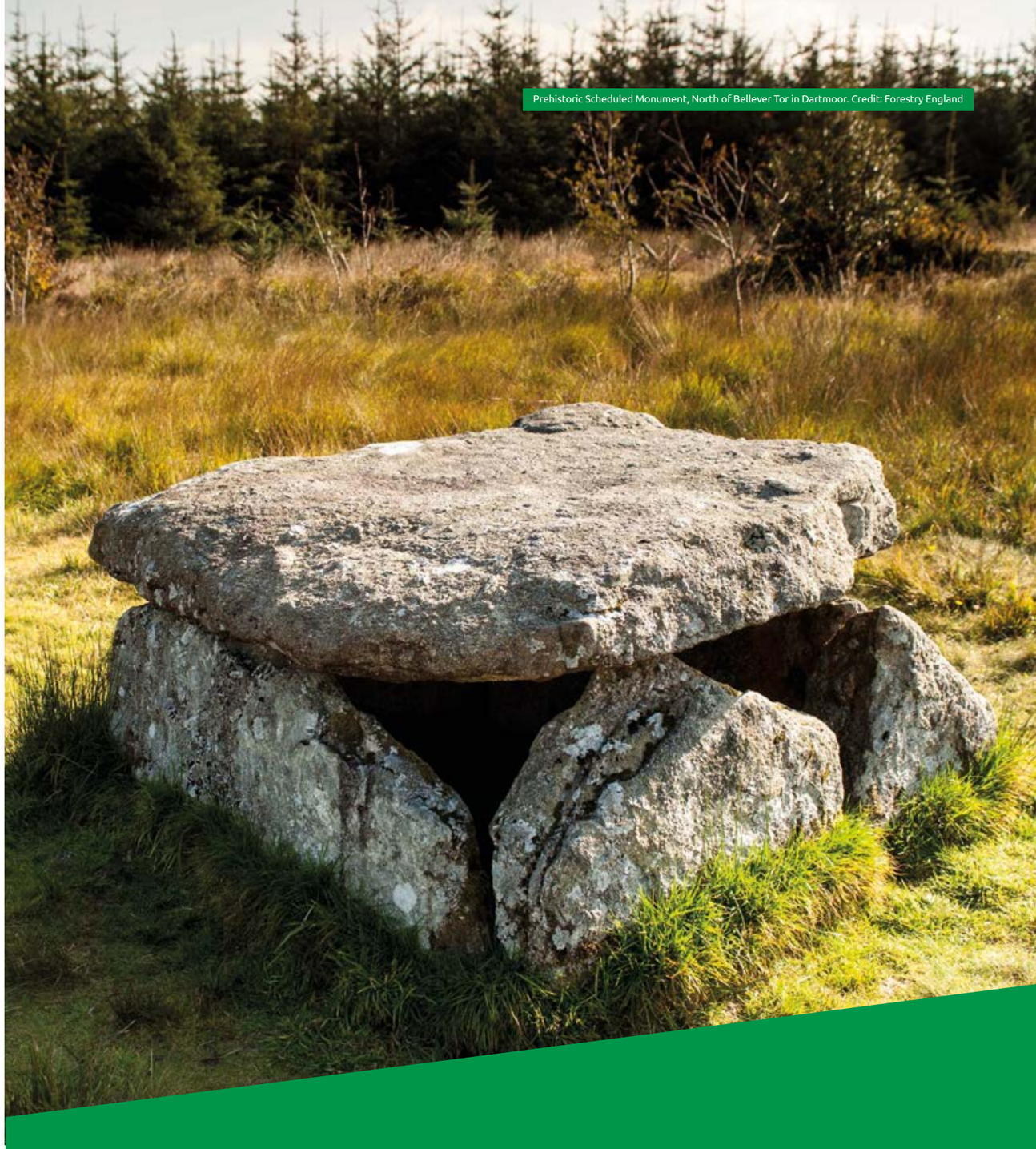
- The total natural capital value derived from the nation's forests.
- Sources of change in asset values over the accounting period.
- The balance of private value to Forestry England to the external value delivered to society.
- The cost of maintaining natural assets and the productive capacity of the nation's forests.

The net asset value reflects the value of the nation's forests to both Forestry England as an organisation and the value to society. These values are referred to as 'private' and 'external' respectively, and are combined and balanced against the cost of maintaining and sustaining our natural assets over time.

The natural capital balance sheet highlights that what an organisation produces or delivers may be very under-valued if it is just assessed on the visible financial profit or loss it makes.

There are many factors that can influence the value of natural capital, some of these are within the control of Forestry England and others are not.

Osprey can be found nesting in some of our forests, and prefer tall trees that allow a clear view to the ocean, where they get most of their food. Credit: Forestry England



Prehistoric Scheduled Monument, North of Bellever Tor in Dartmoor. Credit: Forestry England

Acknowledgements

Forestry England: Wendy Shippam, Jacob Waller, Peter Burnett, Helen Connor-Walton, Amanda Ellis, Alan Harrison, David Hodson, James Simpson, Jonathan Spencer, Josie Sterling, Neville Geddes, John Stride

Forestry Commission: David Cross, Rob Pole

Forest Research: Ben Ditchburn, Lesley Halsall, Sam Broadmeadow, Robert Matthews

Butterfly Conservation

British Trust for Ornithology

Find out more

For more information about Forestry England's natural capital account contact:

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620 Bristol Business Park
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Bristol
BS16 1EJ

0300 067 4000
fe.england@forestryengland.uk

A secluded path through a conifer plantation in Dalby forest. Credit: Cam Sweeny

Published by Forestry England

Design by Tom Barnard

Forestry England

Forestry England Performance Scorecard

Forestry England Board – October 2019

Mike Seddon – Chief Executive

James Simpson – Director of operations, Forestry and Land Management

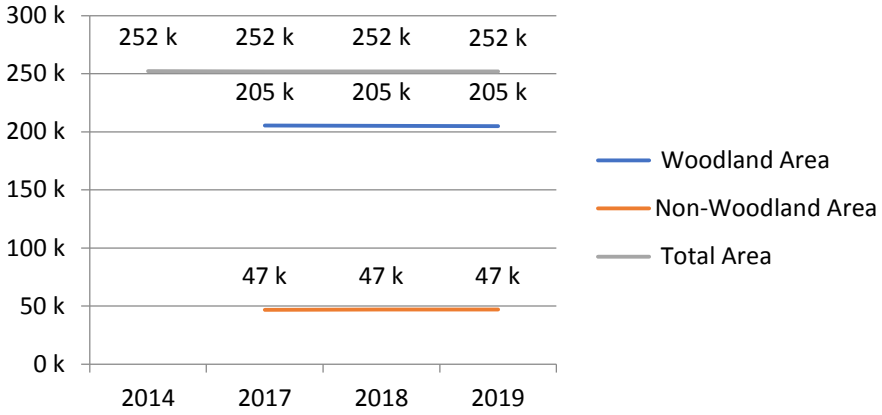
Forestry England

Forestry England

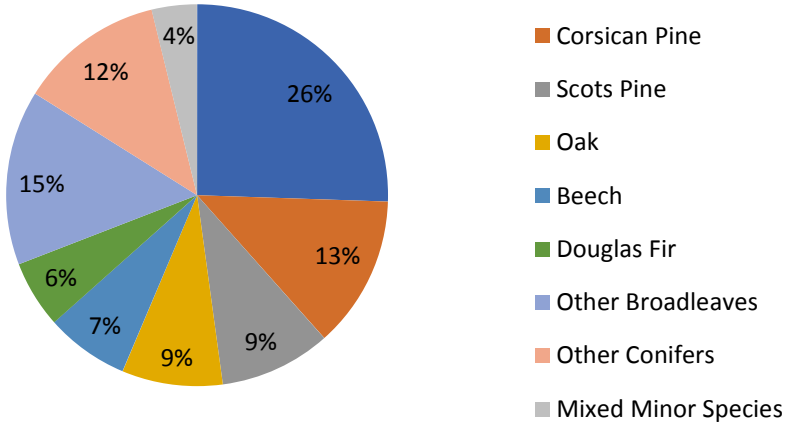
Superb Forests

The Nation's forests are at the forefront of contemporary Worldwide forestry management

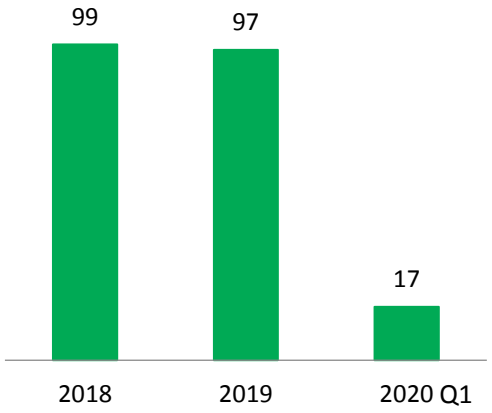
Woodland Area and Size of Estate (Ha)[1]



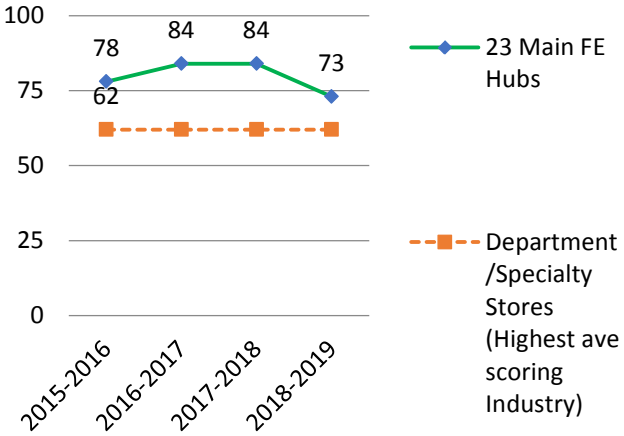
Tree Species Diversity[3]



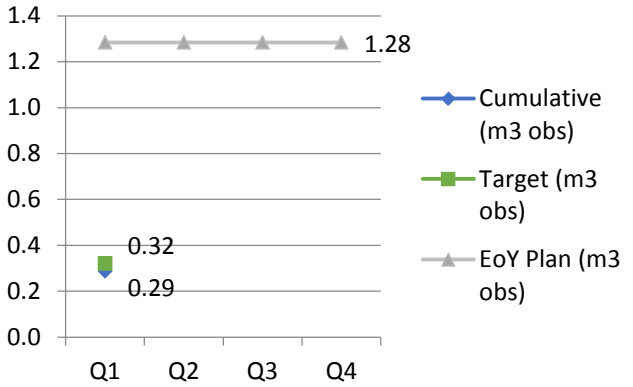
Number of Volunteer Work Years[2]



Visitor Experience Net Promoter Score



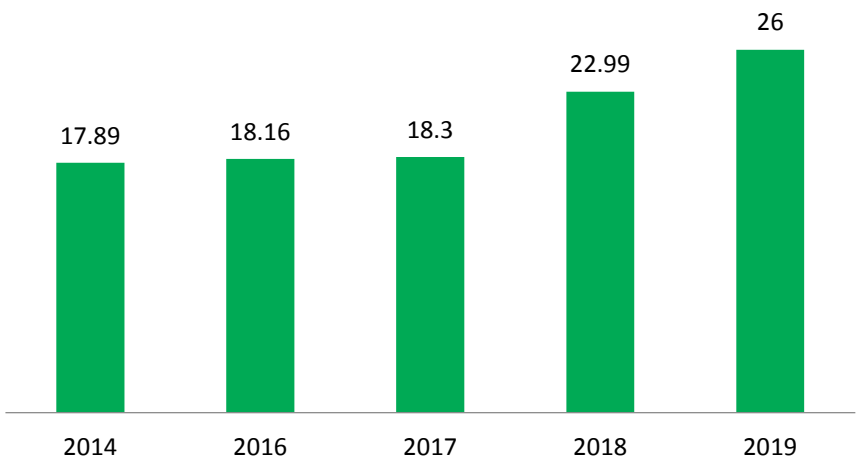
Timber Production (millions m³)



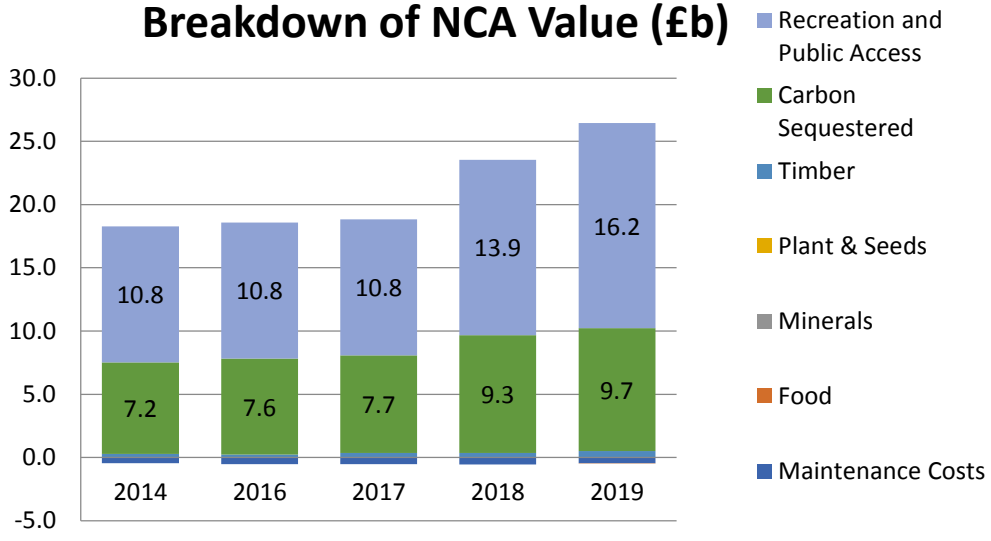
Increasing Natural Capital

The Nation's Forests' natural capital value is increasing

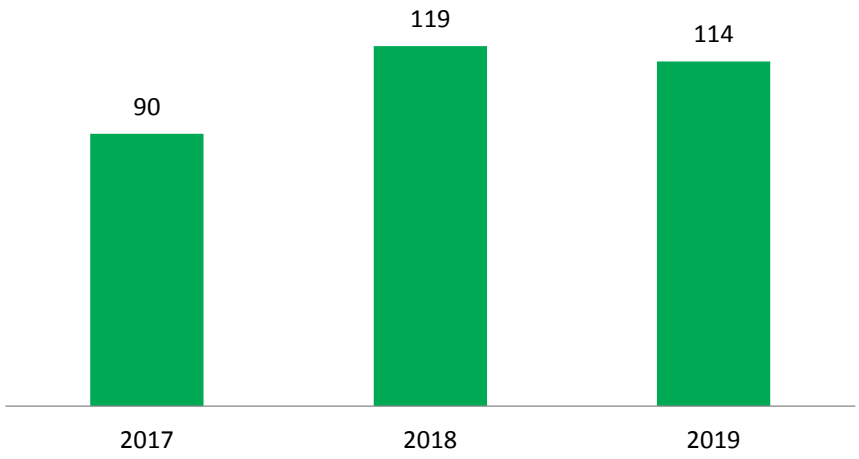
Adjusted NCA Value[1] (£b)



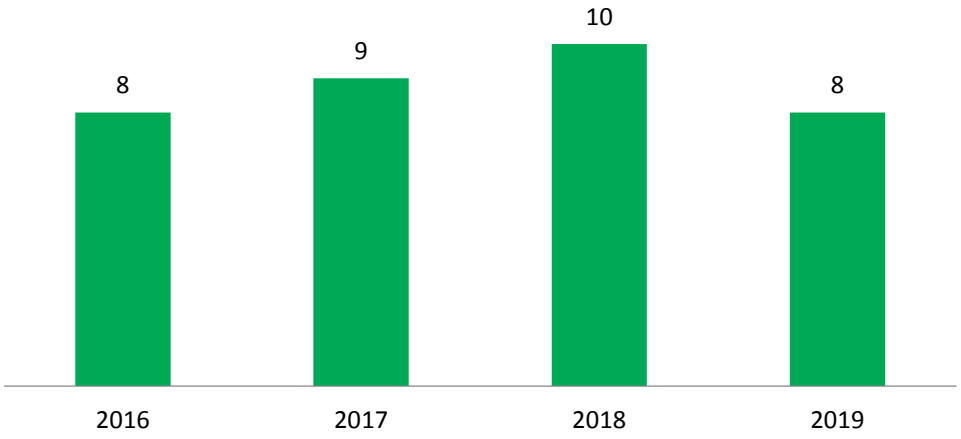
Breakdown of NCA Value (£b)



Number of Items in Natural Capital Account Asset Register[2]



Number of Items in Natural Capital Account Monetary Flow Account

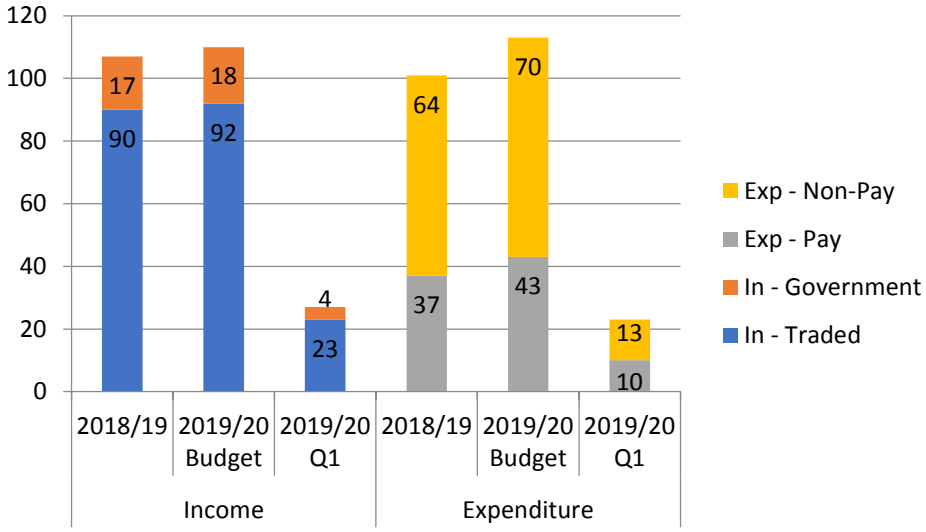


High Quality Investments & Sustainable Finance

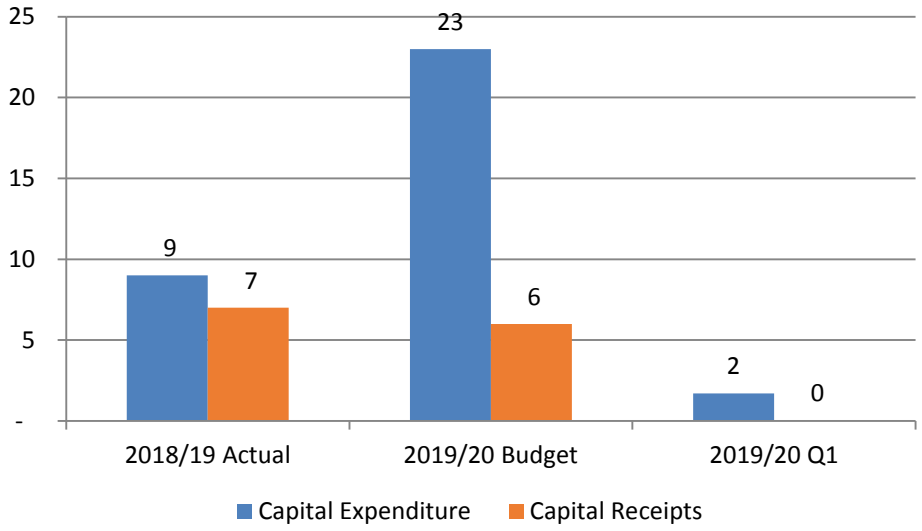
Forestry England

The Nation's forest estate is financially sustainable, standing on its own feet

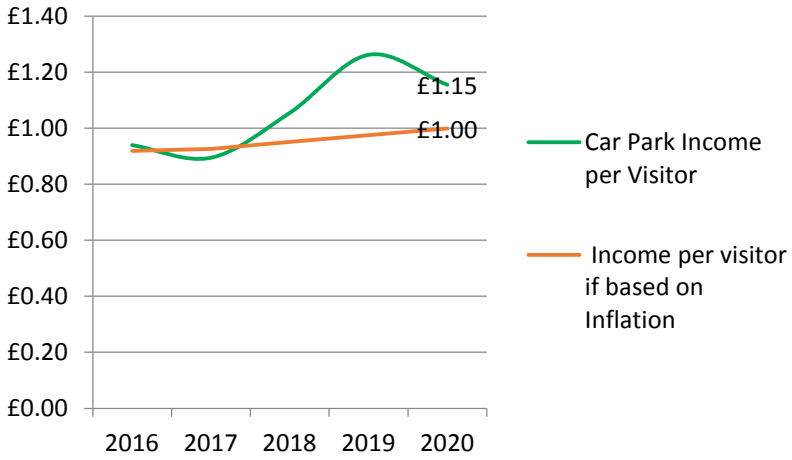
Income & Expenditue (£m)



Capital Investment (£m)



Entrance Income per Visitor

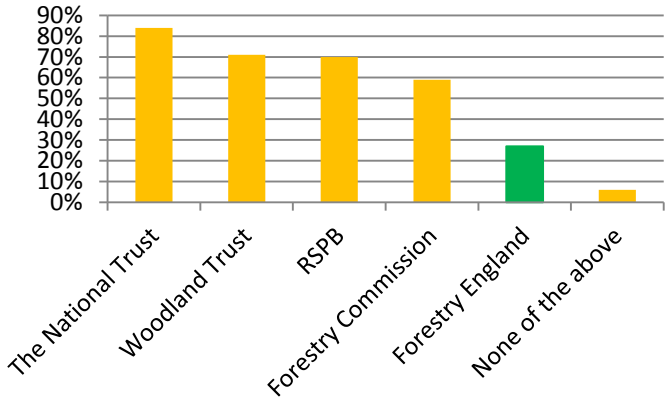


Forestry England

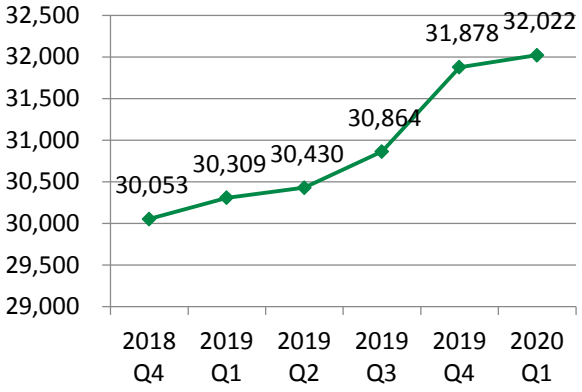
Telling Our Story

What we do has a positive influence beyond the Nation's forests and is recognised as being first class

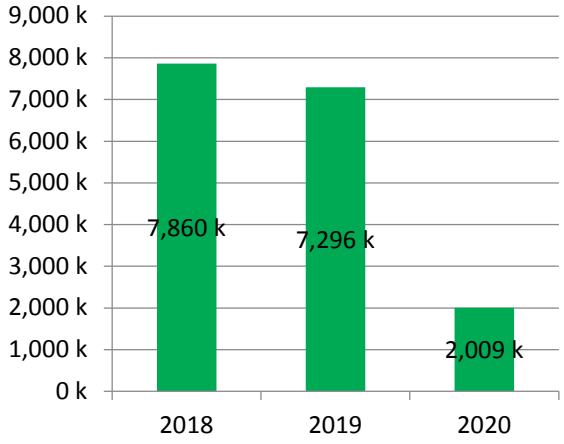
Brand Awareness of Leading Land Managers[1]



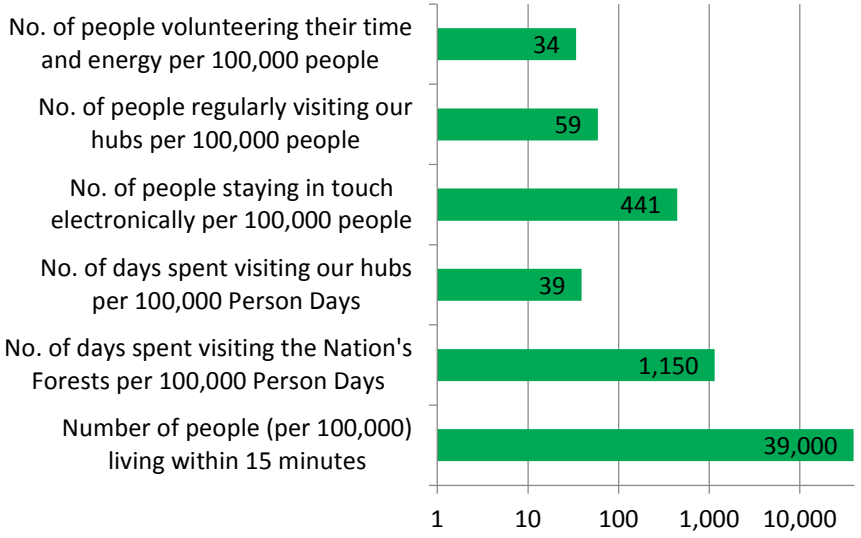
Supporter Loyalty - Discovery Pass Holders



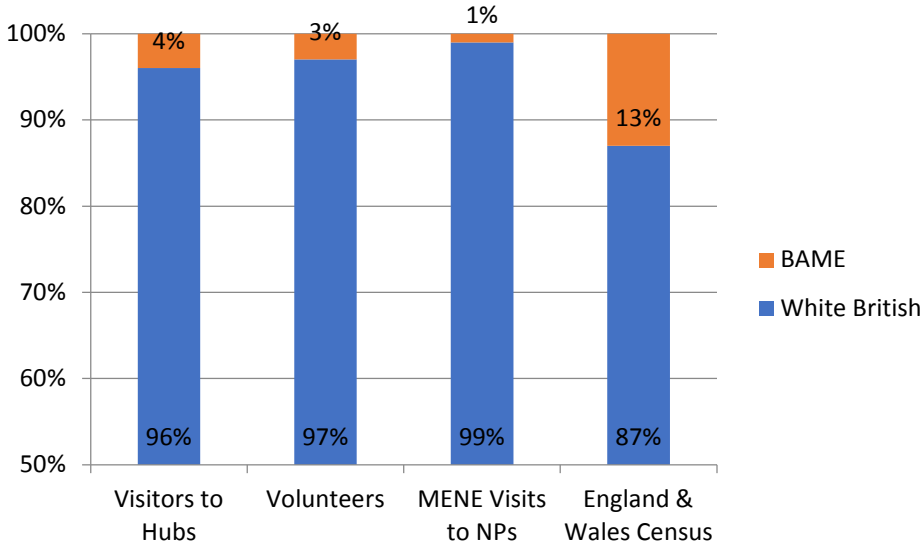
Visits to main hubs



Connection Choices



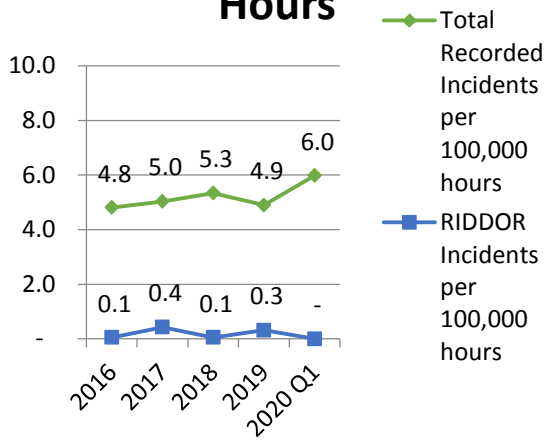
Ethnic Diversity of Connected People



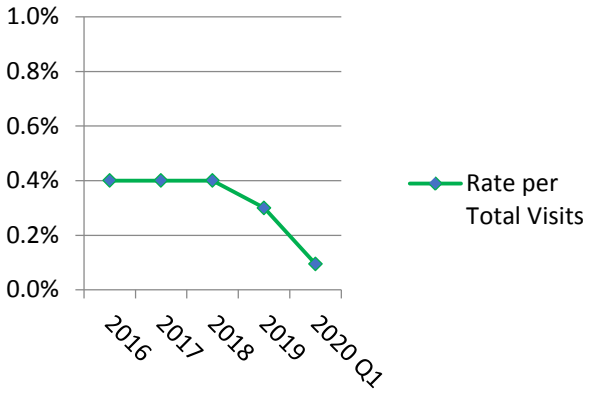
Being an outstanding organisation

We are excellently led, motivated and skilled people.
We are supported to deliver and act with integrity.

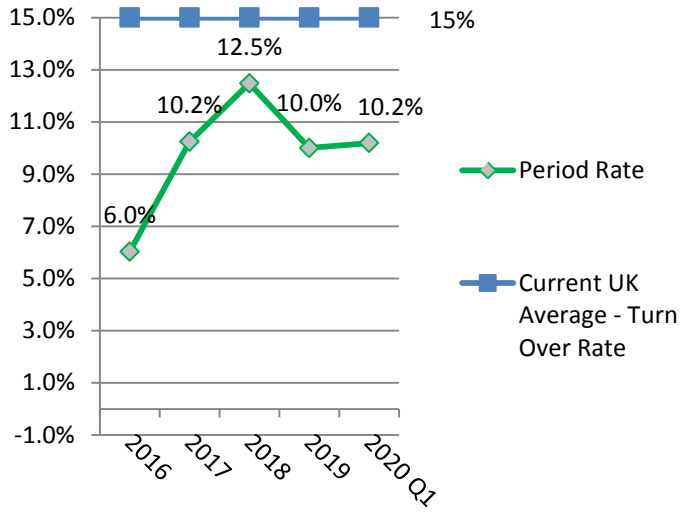
Staff Safety - Accident Rate per 100,000 Hours



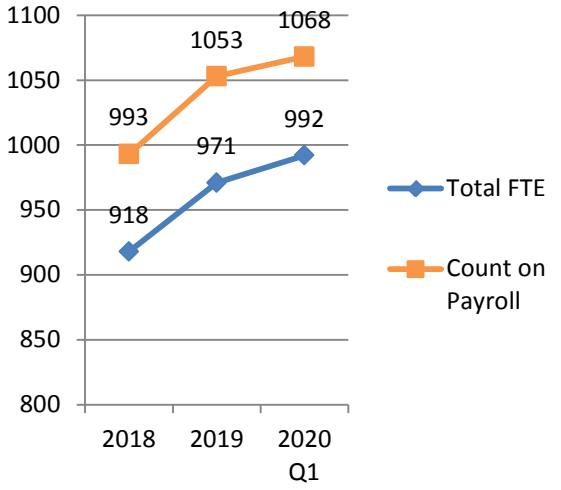
Public Safety (Rate of reported incidents per total annual visits)



Staff Turnover Rate



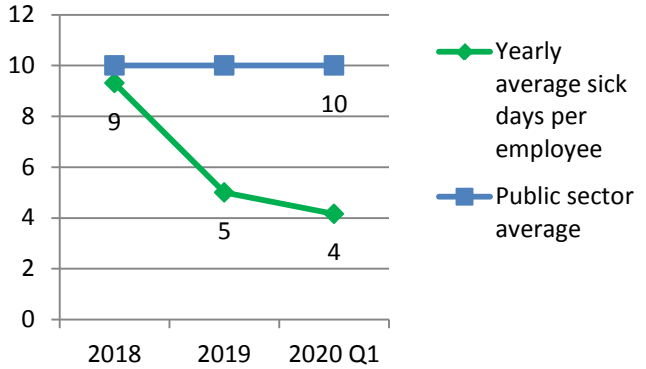
Staff Head Count



Current Vacant Posts.

Under development

Staff Absence (annual sick leave rate per employee)



Forestry England

Forestry England Performance Scorecard

Focus Discussion: Being an Outstanding Organisation

Mike Seddon – Chief Executive

Forestry England

Being an outstanding organisation

We are excellently led, motivated and skilled people.
We are supported to deliver and act with integrity.

	Good Governance	Safety Culture	Outstanding People
Where we are	Forestry England, new Board, new structures	FISA, safety first culture	Staff engagement
Where we want to go	High performing Governance. Accountable and transparent	Strong safety culture (and trusted /perceived as safe). Safe behaviours and space to challenge	Skilled, motivated workforce making effective decisions, being productive
What we currently measure		Accidents, incidents, staff/volunteers, public	HR measures (absence, head count & turnover)
Planned activity over the next 15 months	Widespread understanding across Forestry England of the objective and how it supports delivery of our purpose		
	Governance strategy, schemes of delegation, ARAC, Information strategy, Whistleblowing	Staff survey will help us understand perceptions better. Understand accident / incident root causes	Offer 2020, Leadership development training, staff survey, staff volunteer days (health & wellbeing programme)
How do we know we are succeeding?	<u>We will:</u> Develop MI around complaints. <u>We could:</u> Seek external accreditation for our governance, for example operate to external code of practice such as BSI 13500	<u>We will:</u> Carry out biennial staff survey which incorporates specific safety questions. <u>We could:</u> Commission an external assessment of our safety culture	<u>We will:</u> Carry out biennial staff survey which incorporates specific training and development questions. <u>We could:</u> Seek external accreditation, for example, Investors in People

Forestry England

Agenda Item 4 | **Forestry England Board 25 September 2019** | **Board Paper 4.1**

Paper Title: Finance Report

Under the Freedom of Information Act 2000, this paper has been withheld from publication as per Section 43(2): Prejudice to commercial interests.

If you wish to request this paper please contact Rachel Mackintosh at Rachel.mackintosh@forestryengland.uk

Forestry England

Agenda Item 5 **Forestry England Board 25 September 2019** **Board Paper 5.1**

Paper Title: Forestry England Recreation Model
Under the freedom of information act 2000, exempt information this paper has been withheld from publication as per Section 43(2): Prejudice to commercial interests.

If you wish to request this paper please contact Rachel Mackintosh at Rachel.mackintosh@forestryengland.uk

Forestry England

Agenda Item 6 | **Forestry England Board 24th September 2019** | **Paper 6.1/9/19**

BOARD PAPER

Paper Title: Developing Plant and Seed Supply in Forestry England

Author/Presenter: James Simpson

Decision Required	For Approval	Information Only	Official/Commercial Sensitive
	x		

Paper requirement and action required by Board:

1. Agreement of Forestry England's approach to developing our plant and seed supply operations as part of our Forest Resilience action plan.
2. Seek approval from the Board to communicate our approach and take forward action areas which we have identified as being a priority.

1. Communication headlines

- A reliable supply of healthy tree seedlings, which will be well adapted to our future climate, is an essential element of maintaining forest resilience and delivering our strategic objectives.
- Forestry England is investing in our tree nursery and seed supply operations so that we can meet demand from all parts of our customer base, and do so in a way which is resilient to the pressures created by changing weather patterns.

2. Purpose

This paper outlines what Forestry England is doing to build resilience into our plant and seed supply operations, which supply tree seedlings to the state forest sector in England, Scotland and Wales and tree seed to the wider nursery sector.

This paper compliments the paper (5.1/7/19), describing our approach to building forest resilience through a prioritized work programme, which the Board received at their July 2019 meeting.

3. Background

The Forestry Commission has, since the very earliest days our tree planting mission which started 100 years ago, been raising tree seedlings needed to plant new woodland and replace all the trees we harvest. In the earliest days every forest had its own tree nursery, but over time this has become a specialized function which has been consolidated on a few sites where growing conditions and logistics are best. Within the Forestry Commission, responsibility for tree nurseries and seed supply has moved over the years. Since 2012, what is now our Plant Seed and Supply (PSS) internal business unit has, has operated on a GB basis supplying the needs of the state forest management organisations in England, Scotland and Wales. With the conclusion of forestry devolution in 2018, PSS's nursery in north Scotland is now under the management of Forest and Land Scotland, and PSS's continued participation in supplying tree to Wales and Scotland will be through open competition in public sector procurement.

At present PSS supplies around 20 million tree seedlings each year of which about 17 million are grown in our production facilities at Delamere in Cheshire and Wyekham in north Yorkshire. In addition we have a tree seed processing unit at Alice Holt in Hampshire. Annex A contains a more detailed description of PSS nursery operations.

4. Forest resilience and the challenges for plant and seed supply operations

Increasing the genetic diversity of trees growing in the nation's forests is a fundamentally important climate change adaptation action which will boost forest resilience. To achieve this we need to make evidence based decisions about the changes in tree species genetic diversity we need, and then translate these into commercial scale production which reliably delivers the right trees, to climate matched planting sites, in the necessary quantities.

For PSS the basic challenges lie in sourcing the requested genetic diversity in the form of tree seed and then raising it, as quickly as possible, to the product specifications promised to the customer. These challenges can be summarized as follows;

- Seed supply: For the small number of tree species most commonly planted in the UK, seed is available commercially but often not in large quantities. For many less commonly planted species, or less frequently planted provenances of commonly planted species, seed can be very difficult to source. Forest Plans which include the development greater genetic diversity cannot be implemented without a reliable supply of the specified tree seedlings.
- Controllable growing conditions: Nursery management can be challenging when exposed to extreme weather conditions. For this reason we have, for many years, raised some tree species under cover. However this only possible for a fraction of our annual production. In the open-nursery we are at the mercy of climate change and periodically suffer from unusual weather such as the very dry summer of 2018.

- Biosecurity: Tree pests and diseases have become prominent in UK forestry in recent years and have already started to reduce the genetic diversity of our forests as particular species (larches, Corsican pine, Ash) have become effectively unusable. The tree seedling supply chain represents a serious risk in the spread of tree pest and diseases which, if not protected against, could inflict serious and widespread damage on the nation's forests.

5. Action to build resilience in our plant and seed supply operations

As part of our drive to increase forest resilience we have already completed one large project and started the implementation of others;

- We have constructed a large (0.95ha, £4.5m) glass house at Delamere which replaces a large number of poly tunnels and is presents a step change in controllable growing conditions. This facility is now in its first year of full production and is already revolutionising our capacity for the production of the conifer species which will form an increasing proportion of our future forests.
- We have created a new technical role in our seed supply unit who will lead in the identification and harvesting of new tree seed sources in the nations forests. The focus of this work will be on both Sitka spruce seed and on other conifer species for which seed is difficult to source.
- We have supported *Grown in Britain* in (£80k) the technical development of the Plant Health Assurance Scheme (PHAS) in collaboration with the Horticultural Trades Association and DEFRA, and become the first nursery to undergo independently audited verification of our biosecure operations. It is intended that PHAS will be operated across the full range of horticultural nurseries, wholesalers and retailers and become financially self-sustaining.

6. Next steps

In addition we are at the planning and evaluation stage for two more projects which will improve the resilience of our plant and seed supply operations.

- We are reviewing our seed processing facilities at Alice Holt and developing a business case for modernisation and increasing production. At present we specialise in the preparation of small tree seeds (mainly conifers) and are considering expanding our technical capability to work with large tree seeds. A redevelopment of our tree seed processing capabilities would underpin our ability to provide the increase in genetic diversity which is needed to build resilience in the nation's forests and in the wider UK forestry sector.
- We are finalising a project proposal which will extend the area of open nursery at Delamere which benefits from irrigation. Extending the area of open nursery which we can irrigate will reduce our vulnerability to summer drought and help ensure an uninterrupted supply of tree seedlings, of the desired genetic diversity, to our customers.

Developing plant and seed supply

The Board are invited to approve the development, and implementation, of actions which will continue to build resilience into the supply of tree seed and seedlings which will underpin our drive to increase genetic diversity in the nation's forests.

James Simpson
Director of Operations – Forestry and Land Management
September 2019

Annex 1 - PLANT AND SEED SUPPLY - NURSERIES

1. BACKGROUND

Forestry Commission tree nurseries have been an essential part of the organisation from its inception. There was a nursery at Delamere in 1919, though not on the current scale, and at Wykeham by 1927. Most forest blocks used to have small nurseries and were largely self-sufficient for plant supply. By the 1950's there were over 50 FC nurseries throughout the UK, with the bulk of the operations being manual. During the 70's and 80's, driven by forest expansion and the requirement for more plants of higher quality, nurseries had to become more efficient, which led to greater mechanisation and a need for economies of scale. Many of the local FC nurseries were closed; reducing to 10 by 1980. The decision to concentrate production at just three nurseries, Delamere and Wykeham in England and Newton in Scotland, was taken in 1987, and by 1990 this was in place. Delamere was developed as a joint covered and open nursery complex, producing cell-grown stock in polytunnels and bare-rooted stock in nursery beds. Wykeham and Newton were solely open nurseries concentrating on growing bulk products such as spruce, larch and pine.

In 2010, the supply of plants to the FC was reviewed, particularly looking at whether or not the private sector could supply public sector needs. The outcome was to retain most production within FC nurseries as giving best value and security of supply, though it did recommend that cell-grown broadleaf supply was contracted out, which happened in 2012. Also at this time, control of all three nurseries passed from FC to Forest Enterprise England.

Following Scottish forestry devolution in 2019, PSS no longer has any control over Newton. However, we still continue to supply Forestry and Land Scotland (FLS) under a service level agreement and we have recently won the contract to continue supplying Natural Resources Wales (NRW).

2. Demand and production

Delamere nursery covers an area of 70 hectares and has the current capacity to produce c.12 million plants per year; 8 million as bare-roots and 4 million as cells. Wykeham covers 50 hectares can produce c.6.5 million bare-rooted plants. Due to their differing climates, Delamere tends to produce stock on a 2 year cycle, while Wykeham takes 3 years. However, Wykeham stock can be sturdier and particularly suited to harsher, more northern and upland sites e.g. Kielder.

The demand for planting stock has been increasing steadily over the past few years; rising by roughly 20% across all three countries between 2013 – 2017, with the largest increase being in Scotland's requirement (a rise of c.4 million) as shown in Chart 1 below. Nursery production has remained relatively constant, thus requiring that we purchase greater quantities from the private sector, which itself is a limited resource and currently producing at full capacity. If stated planting targets are to be met, there

is a need to increase production, and therefore area, from both public and private sector forest nurseries.

The mix of plant types requested by Districts (Chart 2) is predominately bare-rooted conifers (75%), though we are gradually increasing the availability and use of cell-grown stock. Cells have the advantage of being plantable when the tree is in a non-dormant state, due to reduced root disturbance in a plug. As climate change is reducing winter cold, and plant dormancy periods, allied to the need to extend the planting season to meet larger programmes, the use of cell-grown stock will have an increased role.

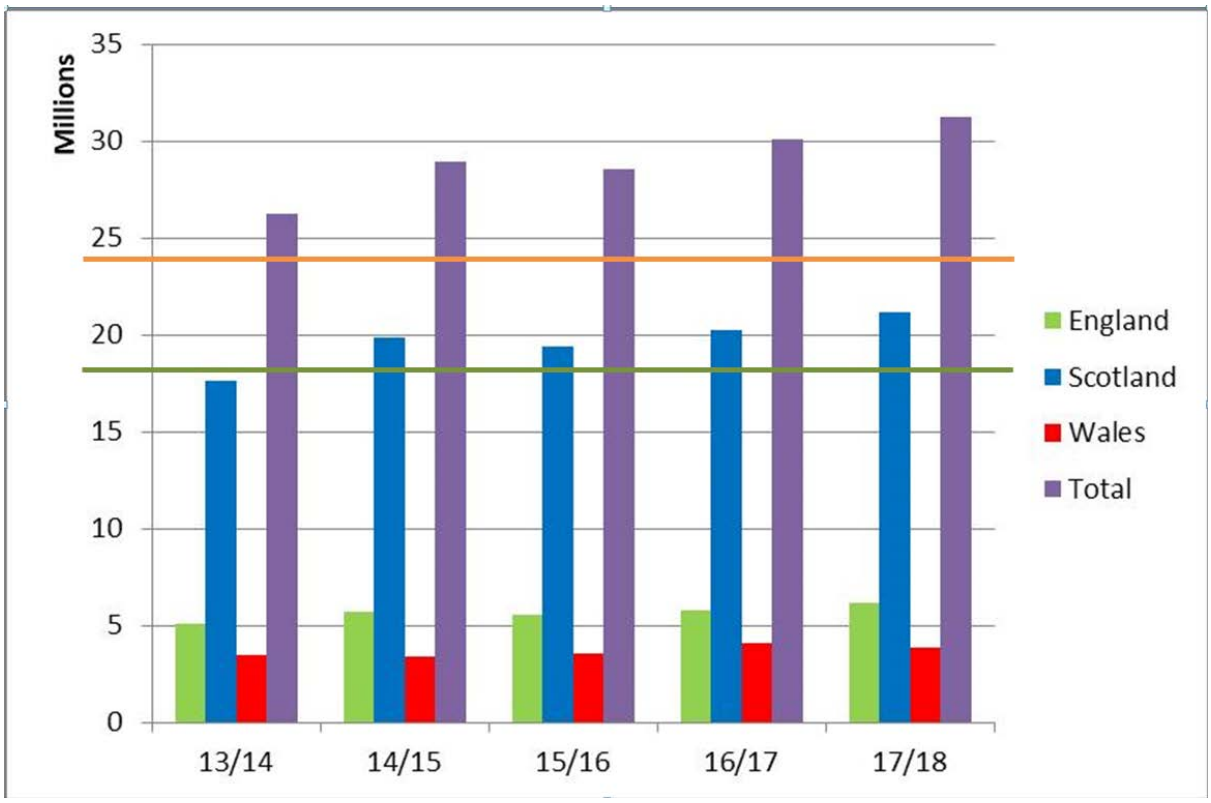


Chart 1 – plant demand from 2013 – 2017 by country

average annual production of Delamere, Wykeham and Newton.

average annual production from Delamere and Wykeham only.

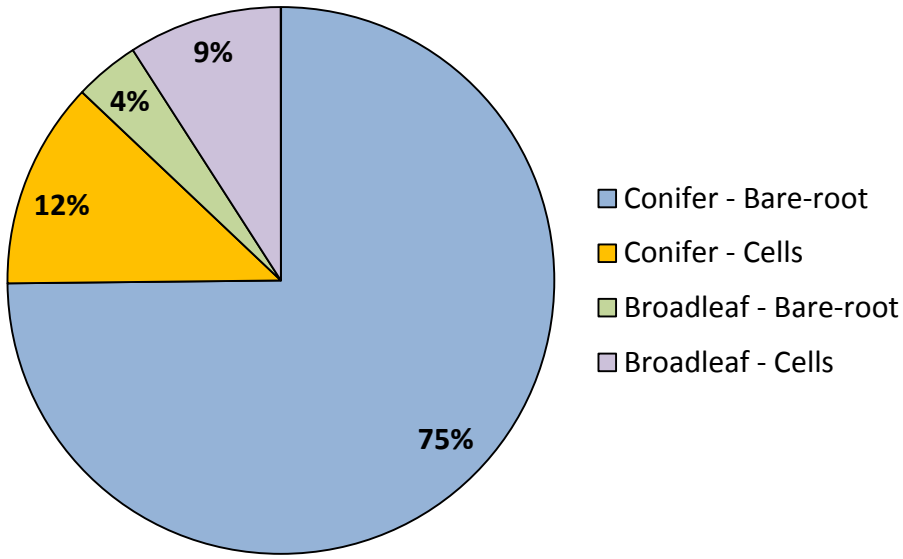


Chart 2 – Plant type demand.

Within the conifer species, Sitka spruce remains the first choice for timber production (Table 1) with 65% of our production being this species in one form or another. Notable are the 20 'Other' species being grown in cells, these are mostly our newer 'alternatives', which tend to grow better in a controlled environment e.g. the newly built glasshouse.

Species	Bare-root %	Cell Grown %	Total %
Sitka spruce	59.8	5.6	65.4
Scots pine	6.3	0.9	7.2
Douglas fir	5.1	0.3	5.4
Norway spruce	7.8	0.3	8.1
Lodgepole pine	7.7	0.4	8.1
Others	2.7 (3 sps)	3.1 (20 sps)	5.8
Total:	**89.4**	**10.6**	**100**

Table 1 – Relative numbers of conifer species grown.

3. Species diversity

The need to increase forest resilience against the effects of climate change and the risks from pests and diseases is driving PSS to grow a wider range of species and to test different provenances within these species. 10 years ago, we grew around 15 species which included the now high disease risk species Corsican pine, larch and ash. Currently, we have a suite of 34 species (27 conifers and 7 broadleaves – see Appendix 1). Some of these species are challenging to grow and not available in commercial quantities anywhere else in the UK, but they do offer future potential as productive trees. In this we are nursery sector leaders. While we will continue to trial new species, there is a need to rationalise the number of species that we grow on a commercial scale; ideally no more than 20. We are working with Forest District colleagues to agree which species should be concentrated on by PSS.

4. Investment

Facilities

Owing to the redevelopment of our main polytunnel site at Delamere Old Pale into a recreation complex, we relocated to Lobslack and took the investment decision to aggregate the original 32 individual polytunnels into one large (0.95ha) glasshouse. This structure has a computer controlled environment, mobile benches and integrated welfare and work areas. It has proven to grow c. 20% more stock per unit area, of superior quality, than the previous system, and to do this more cost effectively. In addition, we harvest the rainfall from the glasshouse roof and store this in an adjacent lagoon, which provides all our irrigation needs.

As part of the move away from Delamere, we are also relocating the nursery office. This will now become part of the Abbots Moss site, which also includes plant storage and dispatch. Integrating the Administration and Operational sides will have benefits for stock control and overall nursery cohesion.

Land

As previously stated there is a need for more productive nursery land; this is hard to find at acceptable prices in agriculturally rich Cheshire. We have been able to acquire c.25 hectares of a reclaimed sand quarry, which we are currently improving. To be fully productive this land will require an irrigation system to be installed. This is being actively pursued and it is hoped to have in place by the start of 2021.

At Wykeham, there is the potential for leasing some additional land close to the nursery vicinity. This is also being pursued with the assistance of Yorkshire Forest District.

5. **Biosecurity**

A major lesson learnt from *Dothistroma*, *Phytophthora* and *Chalara* is how important biosecurity is within the nursery sector. Our products spread out, from central hubs, across the country and have the potential to be rapid vectors of infected material if responsible control is not applied. In FE, we have taken the decision that we will only use planting stock that has been sown and grown within the UK, and then only if it has passed the required biosecurity inspections. We have been actively involved in the development and trailing of the HTA/DEFRA Plant Health Assurance Scheme (PHAS) and passed their audit earlier this year. In future, we will expect any of our external suppliers to be PHAS accredited.

6. Commerciality

Currently we do not deliberately grow plants for sale to the private sector. There is no legal impediment to this, but the decision was taken in 1988 not to sell externally because it would have had a detrimental impact on, what was then, a weak nursery trade suffering from a severe downturn in tree planting across the UK following the removal of a tax regime which encouraged largescale woodland creation. This decision still stands. However, where we unintentionally over-produce an item, we are able to sell this to private sector nurseries provided that a majority of Confor/HTA nursery members agree that this will not adversely affect the market.

In March 2019, NRW tendered for their plant supply through the Welsh Governments public procurement platform. For the first time, PSS competed against the private sector for a major plant supply contract (4 million trees), and we won. We were not the cheapest, but won on our superior systems and customer service offer. The private sector did not complain, probably because current market conditions show demand exceeding supply. Our actions have effectively superseded the 1988 decision.

It is certain that Scotland will also tender for their plant supply within the next few years. This is likely to be in various species/plant-type lots. We are only able to meet part of their need now, so will have to consider carefully which lots we are best placed to bid for; ensuring that we keep Forestry England and NRW fully supplied.

7. **Future**

There is every indication that the demand for forestry planting stock will remain high in the foreseeable future. PSS is operating close to capacity, with productive land area the critical factor, and while we will be able to meet most of Forestry England and NRW needs, we cannot meet Scotland's. We currently close this gap by spot-purchases from the private sector, which leaves us open to the vagaries of the market. In future, we need to move toward a more proactive relationship, with advance purchases and contract-growing. This is being developed and we hope to have a 10-year, or greater, plant procurement scheme in place before Christmas 2019.

Labour cost is the major part of our expenditure. We are looking at increasing the levels of automation and mechanisation to reduce this. Two particular areas where this would have a large impact are plant grading and mechanical transplanting into nursery beds. We are currently investigating several European systems that have potential to increase our labour efficiency. These topics are equally as important to the private sector nurseries and we are liaising with them to find the best solutions.

8. **Conclusion**

PSS is a commercially viable and essential part of Forestry England and the UK state forest sector. It is competitive and leads in plant husbandry and allied systems of stock and personnel management. The benefits of security, and flexibility, of supply that Forestry England gains is tangible, if not quantifiable. Going forward, PSS may need to be more commercial, but will remain FE's supplier of choice.

Alan Harrison
Head of Plant Seed and Supply
September 2019

APPENDIX 1 - SPECIES GROWN BY PSS 2019	
Conifers:	
European silver fir	*Abies alba*
Pacific silver fir	*Abies concolor*
Grand fir	*Abies grandis*
Noble fir	*Abies noblis*
Monkey puzzle	*Araucaria araucana*
Atlantic cedar	*Cedrus atlantica*
Lawson's cypress	*Chamaecyparis lawsoniana*
Japanese cedar	*Cryptomeria japonica*
Juniper	*Juniperus communis*
Dawn redwood	*Metasequoia glyptostroboides*
Norway Spruce	*Picea abies*
Omorika spruce	*Picea omorika*
Oriental spruce	*Picea orientalis*
Sitka spruce	*Picea sitchensis*
Lodgepole pine	*Pinus contorta*
Macedonian pine	*Pinus peuce*
Martime pine	*Pinus pinaster*
Radiata pine	*Pinus radiata*
Weymouth pine	*Pinus strobus*
Scots pine	*Pinus sylvestris*
Loblolly pine	*Pinus taeda*
Douglas fir	*Pseudotsuga menziesii*
Coast redwood	*Sequoia sempervirens*
Wellingtonia	*Sequoiadendron giganteum*
Yew	*Taxus bacata*
Western red cedar	*Thuja plicata*
Western hemlock	*Tsuga heterophylla*
Broadleaves:	
Common alder	*Alnus glutinosa*
Sweet chestnut	*Castanea sativa*
Beech	*Fagus sylvatica*
Cherry	*Prunus avium*
Sessile oak	*Quercus petraea*
Pendunculate oak	*Quercus robur*
Red oak	*Quercus rubra*

Forestry England

Agenda Item 7	Forestry England Board 25th September 2019	Paper 7.1/9/19

BOARD PAPER

Paper Title: Appointments to the Arboreta Advisory Committee

Author/Presenter: Andrew Smith/Mike Seddon

Decision Required	For Approval	Information Only	Official/Commercial Sensitive
	x		

Paper requirement and action required by Board:

- Approval of the appointment of Professor Nicola Spence and re-appointment of David Knott and Gavin Grant to the Arboreta Advisory Committee.

Core messages:

- Forestry England's arboreta, Westonbirt The National Arboretum and Bedgebury The National Pinetum, are internationally significant tree collections delivering important contributions to science and learning as well as being visitor attractions that together receive around a million visits per year making them ideal venues for telling the wider Forestry England story.
- As well as employing professional Forestry England staff the arboreta are supported by suitably qualified and experienced people appointed to the Arboreta Advisory Committee.

1. Purpose

At its meeting in April 2018 when it last considered appointments to the Arboreta Advisory Committee the then Forest Enterprise Strategy Board required that future appointments come before it for approval. It is now proposed to appoint one new member in the light of retirements from the committee, two members are proposed for re-appointment.

2. Background

The Arboreta Advisory Committee exists in recognition of the fact that the Forestry Commission and Forestry England do not have wider expertise in managing arboreta and botanic gardens beyond those staff employed at the arboreta and that there is strategic value in engaging with suitably qualified and experienced people to guide the

development of both institutions and to facilitate relevant national and international connections. Further background on the committee is at Annex 1.

Professor Nicola Spence, Defra's UK Chief Plant Health Officer has agreed to join the committee, the arboreta play an active and important role in tree health being 'sentinel tree' collections and closely monitored by Forest Research colleagues for new and emerging pests and diseases. Nicola's wide ranging UK contacts and scientific knowledge will be invaluable to the arboreta. David Knott is an eminent horticulturalist and a practicing professional currently Curator of the Royal Botanic Gardens Edinburgh. The Friends Trustees, each effectively propose one of their own number for the committee, Gavin Grant being the current representative for the Friends of Westonbirt.

The long-standing chairman is retiring. While the terms or reference leave it for the committee to elect their chair, Dr Paul Smith has indicated he is prepared to be considered for the role at the next meeting. Paul's international connections, alongside Nicola's UK credentials, supported by three other practicing professionals will make for a powerful and effective committee, and marks a transition away from a committee populated by knowledgeable but largely retired members. Arboreta staff are enthused by the prospect of proposed candidates working together with those appointments made last year.

Full representation on the current/proposed committee is shown in the table below.

Member	**Position**	**Expiry date**
Professor Nicola Spence	UK Chief Plant Health Officer, Defra (also Defra representative on Forest Research Board and Yorkshire Arboretum Trustee)	Proposed for appointment 2019-2022
David Knott	Curator, Royal Botanic Gardens Edinburgh	Due for re-appointment 2019-2022
Gavin Grant	Trustee, Friends of Westonbirt; communications consultant and former Chief Executive of RSPCA	Due for re-appointment 2019-2022
Dr Paul Smith	Director General, Botanic Gardens Conservation International and former head of Kew's Millennium Seed Bank.	Appointed 2018-2021
John Anderson	Keeper of the Gardens, Savill Garden, Windsor Great Park.	Appointed 2018-2021
Anthony Hall	Arboretum manager, Royal Botanic Gardens Kew	Appointed 2018-2021
John Gordon	Trustee, Friends of Bedgebury	Appointed 2018-2021
Giles Coode-Adams	Chair – former City Banker and past President of RHS	Retiring - 2019
Elizabeth Banks	Landscape consultant, past President of Royal Horticultural Society	Retiring - 2019

3. Recommendation

The Board are invited to approve the appointment of Professor Nicola Spence and re-appointment of David Knott and Gavin Grant to the Arboreta Advisory Committee.

Andrew Smith
Director Westonbirt, The National Arboretum
September 2019

Annex 1: Role and Background to the Committee

The Committee's role is to contribute to the strategic direction of the National Arboreta. In particular, the Committee:

- advises and supports the Forestry Commission on the development and implementation of policies, strategies and priorities for Westonbirt Arboretum and Bedgebury Pinetum;
- receives and comments on written progress reports on developments at Westonbirt Arboretum and Bedgebury Pinetum;
- supports and promotes the National Arboreta in developing key relationships and partnerships at regional and national levels.

In addition the Committee acts as a tangible means of collaboration and alignment between the two arboreta which rest within different management units within FE England. The 6 monthly meetings alternate between the two Arboreta and involve significant interchange of Arboreta staff. This is alongside other ongoing collaboration particularly on overseas seed collection, science and technical collection management.

The England National Committee appointed the first Arboreta Advisory Committee in 2005. This replaced the two Advisory Committees, one for the National Pinetum at Bedgebury and the other for the National Arboretum at Westonbirt. The committee is believed to be the longest running 'voluntary' group within Forestry England, records of the Bedgebury committee dating back to the early 1950s.

Appointment to this non-statutory Advisory Committee has been by sealed Minute. Appointments are for a three year term. Due to the specialist nature of the appointments they have not been limited to the 10-year maximum time that applied under the code of practice for Public Appointments when the Committee was set up.