



# Homewood bound?

Challenges along the UK's small-scale timber supply chain from forest to construction



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# Navigating this report

We interviewed 29 people from forest to construction and produced 21 insights into the challenges along the UK's small-scale timber supply chain. These are grouped into themes of: market data, industry processes, value, communication and reliability.

**Short of time?** Read [Section 2, Summary](#), for the reports conclusions and a summary of each theme.

**Want the details?** Start at [Section 3, Introduction](#) for a deep dive into the report.

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# Summary

Woodlands provide important habitats, store carbon, and play a vital role in providing timber for building and retrofitting healthy, low-carbon homes. Effective management of these woodlands is important to ensure they are resilient to climate change, disease and pests. With over 40% of woodland in England owned in parcels of less than 20Ha<sup>1</sup>, we need to make it possible for small woodlands to be managed effectively.

By listening to the experiences of people along the small-scale UK timber supply chain we have sought to understand the challenges they face in conducting business. Overcoming these challenges could provide benefits to individual operators, wider forest economies and the ecosystems on which we depend. This report is intended to highlight the most significant issues that operators in these supply chains encounter in their

businesses, with the aim of identifying where Cloudforest should focus efforts in developing tools to support timber and forestry businesses. By purely focusing on the challenges, this report of course presents a restricted view of a sector full of success, positive outcomes and opportunities.

A total of 29 one hour interviews were conducted with: six woodland owners, five woodland managers, seven sawmillers and seven people in construction. These were supplemented with four interviews with people who are involved in timber haulage, harvesting, and in the provision of woodland advice.

Each interview was tagged and processed to identify challenges experienced by interviewees. Challenges have been grouped together into more general insights under the following themes: **market data, industry processes, value, communication, and reliability.**



# Market data summary

A lack of market transparency within the small-scale timber supply chain impedes businesses. An absence of independent data leads to a reliance on trust, creates industry exclusivity and contributes to power imbalances.

## Supply

Sawmillers lack confidence in their ability to secure logs, and in the available local timber inventory. This makes it difficult to commit to financing expensive processing equipment. Uneven supply makes it hard for sawmills to price bids, and supply does not necessarily match with the mills' ability to purchase or store logs resulting in timber travelling further afield or to inappropriate markets.

“ I'm thinking [...] yes, invest but don't get carried away because I've got no confidence the raw material is going to be there. And [...] we're not talking here 20 to 30 years ahead. We're talking two or three years down the line, five years down the line.”

**Sawmill**

## Demand

Sawmills find it a challenge matching supply with demand. This is exacerbated in the construction supply chain, where there is a distinct mismatch between the time needed for processing logs to products, and construction's procurement lead-time. A lack of suitable storage on site or within manufacturing facilities often demands just-in-time procurement. Even for elements where a construction company is able to give the supplier a long lead time, the ability to deliver the next day is important.

“ You arrange a job a year ahead but you've got no idea what's gonna happen the next year [...] I know for a fact people are struggling at the moment [be]cause they've got a lot of wood, they've spent all their money over winter and now the sales aren't as strong as they should be.”

**Sawmill**

## Price

The absence of benchmark timber prices causes delays, and undermines efforts to buy and sell homegrown timber and timber products.

Woodland managers and owners experience delays, and can lack confidence in pricing negotiations. Combined with the complexities of pricing contractor work this all ultimately weakens their ability to bring revenue back to the woodland.

The ability to successfully bid for logs but without overpaying is central to a sawmill's viability. However, without benchmark price data mills can struggle to gauge the market, compounding their lack of confidence in their ability to secure logs.

Difficulties in getting timber quotes delays procurement for the construction industry and pushes them towards suppliers and material choices where the requisite information is readily available.

## Industry processes summary

The timber industry, comprising entities of radically different sizes, faces challenges from power imbalances and a mismatch of processes and infrastructure. Monopolistic dynamics created by large harvesting companies and sawmills make it difficult for smaller businesses to negotiate fair prices, or access markets and services.

“ [They] are the only real two [harvesting and marketing companies] that you know, take [...] that middle range stuff in any quantity. And you kind of always feel [...] they've got you by the short and curlies really.”

**Woodland manager**

The market share held by large sawmills was seen as an acute issue by the harvesting contractor due to the unfavourable payment terms they are able to set, which can cause severe financial distress. Sawmills might wait to collect a timber parcel for several months, thus delaying remuneration for the harvesting work.

“ No word of a lie, I can get tickets through that we've done the work for six months ago. Yeah, and that's not uncommon. That is no way to ask a contractor to run a business.”

**Harvesting company**

Small companies struggle to integrate into big construction's supply chains due to complex data requirements, and capacity limitations. Construction operators at all scales found communicating with timber suppliers difficult due to the speed of response and inefficient processes. There exists a huge disparity in the process of ordering off-the-shelf timber from a merchant and the process required to intentionally procure homegrown.

Small scale woodlands struggle to achieve financial viability. Many factors contribute to this such as a lack of historical management, infrastructure and proportionally high fixed costs, but some are related to the scale at which the industry itself operates. For example, partial lorry loads can end up stranded in the wood, and routes to market for small timber parcels are not readily apparent. Timber that could have gone into a valuable market ends up as firewood.

“ Often they will just see a tree and [...] the ones they cut will be the straightest ones possible. Now, we've got a large market for bends. So we supply a lot of the boat building industry. [...] It might look like a beautiful tree but it's all gnarly and everything. Often, they'll see that and think that's of no use. [...] We can see that and think: Right, that'll be perfect for X, Y and Z industry. [...] We're sat there going, oh, bloody hell, I wish you didn't [...] chop that for firewood. We've got a market for that. There's a lot more money in that.”

**Sawmill**

The practice of splitting up woodlands into plots of around two to 10 acres was raised as an issue by numerous parties. As one sawmiller said, “It should be illegal.” A consequential lack of appropriate management was seen by one woodland advisor as a “time-bomb” in their area due to wind stability issues and activities detrimental to the next generation of trees. Where management is conducted issues of scale are exacerbated, additionally the large number of adjoining properties can make forestry operations impractical, limiting the ability to fell and transport trees.



## Value summary

As a result of current market dynamics, the true value of timber cannot be reflected in its price. A tension exists between the requirement to produce a commodity that can compete with international markets and alternative materials, and a product that reflects the fuller social and environmental value of woodlands. This has substantial industry consequences: Demand has been flattened to very few species with specific properties. The knock on of this is consolidation of the industry, a bias towards simplified silviculture and undermanagement of woodlands. Low pay and financial stress, particularly in the contracting sector results in difficulties in recruitment. With an insufficient network of contractors (at least in some regions), clients find them difficult to pin down, and once engaged their work does not always meet expectations.

“We are struggling for operators now. I train up two people every year. I'll be lucky to get one out of every three years. [...] That's if they make the year. It's a real struggle to get good young people into this industry.”

**Harvesting company**

These difficulties are compounded by rapidly rising operational costs and volatile timber prices. The latter is disruptive for both log and processed timber sales as it creates a situation in which people are reluctant to commit to a transaction.

“Oak is really tough at the moment because [the price] is soaring through the roof. You're frightened to take on big oak orders in the sawmill now because when you buy it in, it might be 20% more expensive than you're anticipating, which obviously bites into your profit.”

**Sawmill**

Two specific issues that affect the revenue returned to a woodland were raised multiple times. Firstly, a pattern exists whereby woodland owners donate or exchange resources rather than taking part in pure sales. This is driven by a combination of environmental or social motivations, a lack of understanding of financial value, convenience, and difficulties in bringing timber to market. Secondly, where logs are sold on the basis of weight, there is a lack of confidence in the timber volume removed from the wood. This was not the case for logs sold by volume. Woodland owners and managers rely on either the self-bill invoice or the lorry weight ticket to accurately represent the weight of logs that have been removed from the woodland. **It is an unusual dynamic to be reliant on others to tell you what you've sold:**

“So, a lorry goes out of my site, I have literally no idea, I mean unless I'm going to sit at the bottom and actually count the number of lorries that go out, I have no way of knowing whether or not all those lorries that come to me on my list of weight tickets is actually the right number of lorries.”

**Woodland manager**

One contentious issue is if there is a delay between felling and log collection the loss of moisture from logs translates to a loss of revenue. Attempts to limit this through penalties for slow collection of logs have the knock-on effect of adding logistical restrictions that penalise small companies who are unable to move or store large volumes in a short time frame.

# Communication summary

At the root of many issues currently affecting the small-scale UK timber supply chain is a lack of communication among individuals and organisations. The upshot is a general difficulty in coordinating efforts, whether that be matching supply with demand, coordinating woodland management activities, arranging logistics, or communicating data. With a significant proportion of the timber industry conducted by word-of-mouth, newcomers experience difficulties in accessing contractors and timber markets; hauliers become the de facto middlemen. One participant helpfully summarised this dynamic when describing hauliers' reach: "They know everything before anyone else".

“ The [...] biggest pain in the ass is trying to find certain timbers at certain times because the liaisons between everybody are, they're just awful.”  
**Sawmill**

Sexism has been reported by multiple female participants as one of the significant challenges they face in conducting business. The only male who brought it up witnessed the impact on his partner. The consequences they experienced were time wasted navigating these issues and ability to carry out their job.

“ I got to a point where I kind of was tired of it and you feel sometimes like you were hitting your head against a brick wall. And I just felt, I don't need to do that.”  
**Construction**

Given the shortage of people working in timber and construction it is easy to see that this issue negatively affects everyone along the supply chain.



## Reliability summary

Many of our research participants have reported their difficulties reaching and engaging woodland managers, harvesting contractors and sawmillers. This frustrates the process of managing woods and purchasing timber. This appears to be, at least in part, due to the nature of harvesting and milling which requires them to spend most of their time actively working the machines. Once engaged, communication challenges remain with woodland owners and managers feeling they have a lack of agency over operations and an inability to hold forestry contractors to the agreed timing of operations.

“ I spend a lot of my time trying to be very, very precise about exactly what I want to happen [...] and then sometimes what actually happens on sites is totally different.”  
**Woodland manager**

“ So, you've got five or six clients that want you all at the same time and it just doesn't work, you know, you've got to try and spread it out. Somebody will get caught with ground damage, it's inevitable.”  
**Harvesting contractor**

One factor that was found to enable these types of dynamics was the widespread absence of contracts or formal agreements made prior to the service taking place, leading to misunderstandings and mutually inconvenient outcomes. The presence of a contract, however, is by no means a guarantee of smooth operations with clauses often unenforceable. The multiple variables that make up any woodland job such as: weather, accessibility, site condition, make it extremely complex to provide pricing and stick to timings for jobs. As one woodland manager put it: *“It's all still based on trust. When it doesn't work, it really doesn't work.”*

These issues are exacerbated by difficulties in acquiring detailed and relevant forestry and timber knowledge. Across different cohorts and levels of expertise, there are substantial differences in knowledge of standard industry practices. For those with less experience, a lack of knowledge of typical forestry practices makes engaging contractors difficult.



Some may see the challenges described in this report as an inevitable part of the industry, but they combine to erode the resilience and viability of the timber supply chain and consequently our ability to look after our woodlands. It is notable that in a horizon scan of issues, “catastrophic forest ecosystem collapse” was ranked by an expert panel as the highest threat for UK forest management.<sup>2</sup> This puts the need for resilience in forests firmly in the spotlight. We need forests that can be productive under a wide range of climate, regulatory, market, economic and technological conditions, partnered with flexible supply chains that can react and adapt. Industry’s current practices and infrastructure determine what is commercially viable today. The entrenchment of these practices prevents alternative approaches from emerging organically, scaling up and then thriving. With the right underpinnings, some of these alternatives could be equally commercially viable whilst offering greater resilience, resulting in a greater timber inventory overall.

There are various shifts in thinking and behaviour that offer hope. Firstly, there are initiatives that aim to monetise construction-stored carbon<sup>3</sup> that may support a fairer price for timber and bring revenue back to woodlands. Secondly, there are initiatives such as the Taskforce on Nature-related Financial Disclosures to better monitor and improve the biodiversity impact of businesses. Those working in forests should be increasingly rewarded for efforts to preserve and enhance biodiversity, and to take an integrated approach to the carbon sink (forest), storage (timber) and substitution (construction) roles of trees.<sup>4</sup>

Information barriers are apparent in most of the challenges faced by the small-scale timber industry: an absence of price data; difficulties staying on top of supply and in anticipating demand; an inability to access timber markets or a reliable network of contractors; poor communications; and, importantly, difficulties in acquiring forestry knowledge. Addressing the more straightforward information and communication gaps experienced by smaller players in the industry will make life easier for forestry, timber and construction businesses.

The contracting sector, with the risks and financial stress they shoulder, deserve particular attention. Throughout the supply chain, from forestry to construction, there is a need for increased skills and capacity. However, training and other initiatives to address skills shortages will fail to deliver if operating a forestry contracting business is commercially unappealing.

Offsite construction companies, which are often founded with social and environmental objectives embedded in their purpose, seem particularly well-suited to strengthen local wood economies and increase the resilience of the contracting sector. With the right supporting infrastructure in place, a network of distributed manufacturing facilities could stimulate and provide a reliable demand for local forest products. Transfer of initiatives such as Prompt Payment Codes would strengthen the timber contracting sector.

At CloudForest, we are working to address information and financial challenges by building digital tools that help connect forests, processing facilities and construction. We have been encouraged and inspired by those we have met so far, and we believe the adaptability of a distributed network of timber organisations will bring increased resilience, and foster a greater number of more rewarding jobs in this vital sector.



1. Bringing woodland into management. The missed opportunities in England and Wales. Royal Forestry Society, 2019
2. A horizon scan of issues affecting UK forest management within 50 years, Eleanor R Tew et al., 2023
3. Construction stored carbon. Climate Cleanup, 2023
4. Transitioning to a Climate-Smart Forest Economy: The 3S Framework. Climate Smart Forest Economy Programme. 2023

# Introduction

Woodlands provide important habitats, store carbon, and play a vital role in providing timber for building and retrofitting healthy, low-carbon homes. Effective management of these woodlands is important to ensure they are resilient to climate change, disease and pests.

However, two well-known statistics stand out to those who operate in and around the forestry industry:

1. The UK imports 80% of its timber to the tune of £8.5 Bn in 2022 (net)<sup>1</sup>
2. 41% of English woods are currently under-managed.<sup>2</sup>

This situation is the basis of the rallying cry from the forestry industry<sup>3</sup> that we must make more out of our homegrown wood resources and improve the ecological condition of our woodlands. With over 40% of woodland in England owned in parcels of less than 20Ha<sup>2</sup>, we need to make it possible for small woodlands to be managed effectively. That not only allows woodlands to be managed with lower environmental impact but in ways that create forests that have the complexity required to be ecologically resilient; and where less timber is wasted. Without suitable routes to high-value markets small parcels of timber go to less valuable uses; for example, 84% of UK hardwoods that make it to market are burnt as fuel<sup>4</sup>. A vicious circle exists where woodlands are not managed and therefore do not produce standard sawmill quality timber, but without income from timber they are not economical to manage. And yet, the use of wood in construction to displace high-carbon materials such as concrete and steel is one of the most effective uses of biomass to mitigate climate change.<sup>5</sup>

The above has been taken as the starting point to design and execute this study.

Whilst making sure to include a breadth of organisations along the supply chain we have predominantly focused on smaller-scale forestry, timber and construction operations. We will use the knowledge built as a result of this study to direct the focus of our future efforts, defining what services we offer.

By listening to the experiences of people along the UK timber supply chain, this study aims to document the challenges they face in conducting business. We have interviewed 29 people, from those working in forests through to those working in construction, in order to understand in detail how challenges are felt on the ground, and how they influence each other. By purely focusing on the challenges, this report is of course one-sided, and part of further work will be to look at what conditions lead to success. Our ultimate aim is to find ways forward that support people to address their challenges and nurture sustainable practices in forestry, timber and construction.

What follows in the Insights section of this report is predominately the product of the interviews that we conducted. We felt it clearer to maintain a separation between the outcomes of our interviews, and the wider context within which forestry, timber and construction businesses operate. This context is well documented elsewhere.<sup>6</sup>

We wish to take our work forward collaboratively, to go on the journey of creating local wood economies nationwide together. We are therefore sharing this report as a step towards increased understanding by different participants along the supply chain of the challenges faced by others.

We hope you enjoy reading it.

# Insights

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The following section contains the most significant insights that emerged from our interviews. Those not included below were either outside the scope of our study e.g. about woodland creation, not fully substantiated by interviewing all of the relevant actors e.g. issues of raising finance, or did not add anything new to well-known dynamics.

Eliciting common problems from interviewees was not always easy. Some have been experienced for so long they become invisible, associated with normality, while others exist solely in the eye of the beholder. Combined with an attitude of some individuals we interviewed of just getting on with things it was often useful to start with the activities that took an undue amount of time.

We have added quotes to each insight where they usefully add colour to what could otherwise be abstract situations that make rather dull reading. The direct communication of the participants' experience also adds verisimilitude to the insights. We have used [square brackets] to indicate where quotes have been amended for clarity.



# Market data

## Staying on top of supply is difficult

Awareness of what timber parcels are available at any given time is a key objective for sawmillers as well as other actors along the supply chain. Buyers need to not only understand what supply is available but also what competition exists for that supply. The inability to access such information has far reaching consequences:

### Lack of confidence in supply

Predicting timber supply is not straightforward. One source of information is Long Term Forest Plans, however, these tend to incorporate the full scope of possible thinning and harvesting operations that might be undertaken during the next 10 years. What actually happens is a subset of this based on factors at the time. Unplanned events such as windblow further complicate planning. Woodlands without a Long Term Forest Plan are expected to have limited potential for saw-quality logs. Without silvicultural management most species of broadleaves tend not to produce the favoured straight, branch free stems. Instead, smaller diameters, knots, and other variabilities are prevalent which increases the processing required and subsequently costs.

The main source of information on which sawmills anticipate future timber is what they see come to the market today. This makes it difficult to commit to, or raise finance for, expensive processing equipment.

“ I'm thinking [...] yes, invest but don't get carried away because I've got no confidence the raw material is going to be there. And [...] we're not talking here 20 to 30 years ahead. We're talking two or three years down the line, five years down the line.

**Sawmill**

### Uneven supply

A lack of consistent access to timber can jeopardise a sawmill's business. One of our participants highlighted his concern in sourcing enough timber due to the inherent difficulty in identifying supply:

“ It's very stressful because in the back of your mind [you're] thinking we're going to run out. What we need [is] somewhere where everybody works together.”

**Sawmiller**

An uneven supply makes managing cash flow difficult and this is exacerbated by an absence of feedback on bids:

“ Well, you can have a period of three months when nothing's offered to you and then for some reason...three or four parcels all around a £100,000 pounds will be offered. Well, you can't afford to buy them all, you can't afford to not get one of them, and so it's very difficult to do the pricing.”

**Sawmiller**

“ I'll buy as much as I can afford, or I have the space and money for and would love to keep the rest but it just disappears and you know, goes up country or in some cases goes to the wrong market.”

**Sawmiller**



## Increased timber miles

One driver of uneven supply is too large volume forest operations which can flood the market. The timber ends up going for a low price to increasingly distant buyers who are able to stockpile. One sawmill expressed a desire for felling practices to be based on a sustainable yield, or on what the local mills wanted. Additionally, one sawmill felt their lack of awareness of what was available locally led them to source timber from further afield.

“I try to buy all my timber [locally] but as I said earlier, with certain species I'm having to go further and further afield. I don't want to but I'm forced to. So if you had a website for example, you could click on what's available in Southeast, what's available in the Southwest [...] and then we could pick and choose where we source our timber from.

**Sawmill**

## Forced de-prioritisation

The busy nature of sawmills means that time consuming tasks, such as staying on top of supply, fall by the wayside even if they are essential. In one case a missed email led to a missed opportunity to purchase timber and, as another participant reported:

“I feel [I] miss out on things [...] When I was younger and more enthusiastic maybe I was going and looking [...] [now I have] too many things to do here all the time [...] I do try and keep my ear to the ground and my nose out there and see what's going on [...] I'm out of the loop a little bit of what's going on ”

**Sawmill**

For construction, the difficulty of staying on top of supply did not arise. Their experience would be better characterised as one of a lack of availability of homegrown wood, full stop.

The above insight is built on data reported by 10 participants across 12 instances spanning the following categories: sawmillers, harvesting contractors, people in construction and woodland advisers. It is noted this issue was reported mostly by sawmillers.

## Lack of clarity of demand

The ability to anticipate who will require particular wood products, as well as how many, at any given time is a central success factor for actors along the supply chain. The following points have a detrimental effect on accessing such information:

### Absence of baseline forestry knowledge

“So in terms of what the market wants we have no clue [...] we've been trained in chainsaw so we can cut the wood but we don't know things like whether they need it to be a certain length, certain size [...] we have no experience [...] What does the market want? How do they want it, how is it possible for us to adapt what we do in order to provide that?”

**Woodland owner**

“The guy who did the sawing helped with that [how to store and saw a log] a bit, but I spoke to a joiner and he said : 'Oh no, you shouldn't have done two planks because no one ever needs two planks'.”

**Woodland owner**

### **Just-in-time procurement by end users**

Construction companies organise their work around tight schedules with the need for just-in-time procurement driven by a lack of suitable storage space on site, and storage also at a premium within manufacturing facilities.

Some of the consequences of demand uncertainty are:

### **Hindrance to planting and silviculture practices**

Woodland managers would like to inform their short-term and long-term plans for planting, silviculture and harvesting based on future market demand. This information would enable decisions about species, log size, log lengths, type of market and end use of their wood products. However, because they find it difficult to access this information, decisions are impaired.

This is particularly challenging for tree planting given the length of time for a tree to reach timber maturity (25-100 years). For instance, sawmill demand has the potential to be very different over that time frame, especially given machinery lifetimes can be shorter than even a first thinning rotation. This has historically led to less risk taking e.g. on choice of species.



## Stockpiling

In addition to demand uncertainty stockpiling by sawmills is driven by: 1) the seasonal nature of forestry operations, 2) the unevenness of supply described above and 3) the time required to process some timber. This reduces the cash the sawmill has available for other things and can be a problem if demand differs from expectations or prices fall.

“ We hold a lot of stock because we never know when anyone’s gonna be cutting our product. So we can’t say: ‘right what we’re cutting next week is this, so let’s order the following logs for next week.’ ”  
**Sawmill**

“ You arrange a job a year ahead but you’ve got no idea what’s gonna happen the next year [...] I know for a fact people are struggling at the moment [be]cause they’ve got a lot of wood, they’ve spent all their money over winter and now the sales aren’t as strong as they should be.”  
**Sawmill**

Although stockpiling partially soothes the issue of access to material it potentially also exacerbates the problem for the rest of the supply chain by reducing the number of logs available for others.

Whilst the ability to forecast demand is a significant issue for many, only one sawmill discussed conducting independent market research by periodically contacting returning customers to understand their future needs.

The above insight was built on data reported by nine participants across 12 instances spanning the following categories: woodland owners, woodland managers, sawmillers, harvesting contractors, and people in construction.

## Inability to find contractors is a barrier to entry

In an industry defined by trust and long-standing relationships accessing contractors can be complicated.

They tend not to advertise, gaining referrals by word of mouth, meaning that newcomers are at a disadvantage when it comes to conducting woodland operations. This in turn can prevent them from doing so and, in the long-term, from entering the industry.

The above insight was built on data reported by seven participants across 10 instances spanning the following categories: woodland owners, woodland managers, sawmillers, and people in construction.

## Absence of benchmark prices delays action

Broadly speaking, individuals in small-scale forestry and construction engage in time consuming processes aimed at establishing benchmark prices for timber. This prevents or delays supply chain decision making and action, and leads to unreliable results. Rapid changes in price make maintaining benchmark prices more difficult.

Publicly available data for standing and log sales are updated infrequently. Hardwood pricing is available, at the time of writing, for 2018, and softwood pricing is produced annually. These do not translate to specific contexts and smaller, less efficient volumes of logs as the cost of harvesting operations can vary significantly. An absence of benchmark prices for timber prevents woodland owners from engaging in smooth marketing and sales processes.

## Impact of absent price data: woodlands

### Delays in woodland operations

Without a benchmark timber price it is more difficult for woodland owners to make decisions. This prevents or delays woodland management activities from occurring, and can create tensions between woodland owners and managers if it has been difficult to get even one quote, and therefore to justify a price.

“When we were given a quote the [woodland owner's] first question was: how do I know that [X] pounds a cubic metre is a good price? All of that was just purely as a result of not having a quote quickly or not having the resources available to at least give [the woodland owner] a ballpark [price]. That's been the major barrier that I've had throughout this entire process.”  
**Woodland manager**

“It has been really hard for [the harvesting contractor] to get a quote. So that's made the relationship between me as the agent, [the woodland owner], and [the harvesting contractor] trying to manage that quite complicated, just because on the one hand I've got [the woodland owner] phoning me up every week asking 'when the work's going to be done, are we just getting the runaround?'”  
**Woodland manager**

### Reduction in woodland revenue

Woodland owners often rely on word of mouth to value their timber and as a result lack confidence in price negotiations, prices offered, and therefore their ability to secure revenue back to the woodland. This is particularly the case for woodland owners who fell timber infrequently. The inability to use a transaction as a baseline price for future transactions further protracts the problem.

This following respondent is implying that getting inquiries from increasingly distant destinations is a symptom of his outdated pricing.

“I think we may still be underpricing our firewood because we are getting some enquiries from quite a long way away now”  
**Woodland owner**

One interview with a farmer highlighted the difference between forestry and farming where daily benchmark prices for crop commodities are available. Crop prices and yields are “integral to the operation of [their] business” and it's something they're dealing with at least once a year. By comparison, felling is something they undertake periodically or as a one-off. A lack of benchmark prices, and therefore understanding of value, is part of their separation from the timber industry.

A lack of understanding of the value of wood is one factor that contributes to a pattern of donation of resources by woodland owners as opposed to pure sales.

This is exacerbated by an absence of benchmark prices for contractor work. Woodland owners can spend significant time contacting multiple parties to get multiple quotes. Due to the nature of their work contractors are difficult to contact and getting multiple quotes may be more time consuming than it is valuable. Often individuals simply go with the first contact they speak to which in turn places an undue reliance on trust. This is further exacerbated by timing restrictions due to the physical nature of forestry (bats, birds, licences, ground conditions, cash flows etc.) and woodland owners can find themselves in the situation where contractors are dictating timing and the price, and the woodland owner is left with little choice but to agree.

## Timber sales being in part a value-scouting process

This issue arises for woodland owners when the price offered is not as good as they were expecting. Significant effort has gone into the process and they are generally committed to selling their timber. Better understanding of their timber value in advance would lead to better woodland decision making and avoid disappointment.

Some actors benefit from a lack of market transparency, for example those vertically integrated along the supply chain often prefer to buy and sell off-market where they can avoid competition. This creates tension between woodland managers and woodland owners if the management company's internal valuations are then proven to not be competitive, particularly if the woodland owner finds that for some time they have not been getting a market rate.

“ If we're putting it out standing, we're kind of showing our house to our competitors, so it's sometimes smart not to put it out to everybody [...] but to put it out to people that you have worked with and trust [...] so we would normally say to the owner, 'we've got this price for you for your timber', and if they said 'not good enough put it out standing' then that's what we would do [...] I would recommend anybody do that in that situation.”  
**Woodland manager**

## Impact of absent price data: sawmills

### Uncertainty in securing supply

The ability to successfully bid for logs, but without overpaying, is central to a sawmill's viability. With an absence of benchmark pricing sawmillers can find it difficult to gauge the log market and therefore are uncertain in their ability to purchase logs. Log purchases are often held through a blind auction that is either won or lost without feedback on other bids. The result is an inability to build market data individually as part of the process. However, some sawmills with good relationships with forest managers are given guidance on price expectations. Established sawmills with trusted relationships with sellers describe having honest conversations about price and are able to use the knowledge they have on market pricing to set their price and take part in open negotiations.



## Impact of absent price data: construction

### Delays in procurement

Like those experienced by woodland owners, delays in procurement affect the smooth running of construction projects. The time employed by people in construction to get material quotes and in negotiations is compounded by the absence of benchmark prices which renders them unable to identify competitive prices. In one example a construction company was completely unable to get even indicative prices out of the sawmills as they were all too busy to engage.

### Friction during material specification

Those in construction have found it difficult to narrow down choice of material due to the difficulty of identifying a benchmark price easily. This in turn pushes construction towards players and materials that are readily available with the requisite information.

The above insight was built on data reported by 12 participants across 15 instances spanning the following categories: woodland owners, woodland managers, sawmillers, people in construction and woodland advisers.

## Trust-based timber valuations

Without independent data the remaining basis to value timber is trust, placed in the seller, or in any other third party that may be involved in the process. Some consequences of this are:

### Industry exclusivity

Newcomers who cannot access data and are not familiar with standard industry processes find it, sometimes rightfully, harder to trust their peers and engage in the industry. This is exacerbated by the timber value being sensitive to harvesting costs which can vary significantly depending on the specific site's conditions.

### Power imbalance

Such a condition makes it difficult for those less knowledgeable or embedded in the industry to achieve fair prices or equal access to timber markets.

The above insight was built on data reported by five participants across 12 instances spanning the following categories: woodland owners, woodland managers, sawmillers, and people in construction.



# Industry processes

## Monopoly dynamics

In an industry consisting of entities of radically different sizes, distribution of power is required to enable smaller players to exist and conduct business fairly. In some situations, this balance falls short:

## Constrained market dynamics

Monopoly dynamics were described where there were limited buyers for certain timber products or volumes.

“ [They] are the only real two [harvesting and marketing companies] that you know, take [...] that middle range stuff in any quantity. And you kind of always feel [...] they've got you by the short and curls really.”

**Woodland manager**

The limited market for certain products not only leads to the inability to achieve a true market price, but also to the inability to secure services necessary to sell to alternative buyers, e.g. direct to the sawmill.

“ Nine times outta 10 the flatbed drivers are ringing up [the harvesting and marketing company] because they know that they'll be moving the stuff and so they are their priorities. You can have lorries organised and then you get called the night before, 'Sorry we've gotta go somewhere else tomorrow.'”

**Woodland manager**

“ There's not enough competition amongst the sawmills, so timber buyer [...] can really hold a price on you, which sometimes doesn't reflect the job.”

**Harvesting company**

And indeed, those who potentially would be alternative buyers are self-censoring:

I rarely get into bidding wars because I know who I'm bidding against and I probably wanna buy wood off them again later. So [...] I'm very careful not to piss people off.”

**Sawmill**

In times of limited supply one smaller sawmill described how a lot of the forestry companies were only selling to the big sawmill because it was easy, and they would “take the lot”.

## Lack of transaction certainty

One sawmill described an experience they had with a large harvesting and marketing company who, having agreed to sell them logs of specific dimensions, dumped a load of something different outside the gates of their yard and sent an invoice. The sawmill feels forced to continue to buy from this company. As they describe it: “sometimes you're caught between a rock and a hard place because they've got the timber and you need it”. To have increased confidence in transactions the sawmill now takes the extra step to drive by their yard to check if they have the timber they claim to have.

Other examples were given where a large seller pulled out of a transaction because they were offered a higher price than the one agreed with the original buyer. There are no consequences to this due to lack of alternatives and the power imbalance described above.

In another situation, a haulier's arrangement with a large harvesting and marketing company shifted. Where previously it was flexible and the haulier had the necessary agency to organise the work in a logical way for all parties it later became stricter and load allocation became erratic, which culminated in trucks sitting parked in the yard and the workload taking longer than it did before.

## Price movements

An example was given where a large sawmill changed their buying habits and this dramatically affected the price local harvesting and marketing companies were able to achieve for the timber they had. As another sawmill explained: "I have to keep up to speed with what the big mills are doing, [...] if they are full, then they're just gonna stop buying". This was to anticipate price movements, but it was also noted in this scenario sellers would tend to wait for prices to improve rather than continue to sell.

## Contractor cashflow challenges

A harvesting contractor has described how large sawmills tightly control cashflow at the expense of contractors. They felt fortunate to have large enough operations to be able to work multiple sites because otherwise the cashflow pressure of working for one big company would have led to bankruptcy years ago. Contractors typically pay their staff weekly, as well as incurring monthly machine finance and fortnightly diesel costs. It becomes difficult to make these payments when it could be four months until they are paid for the work they have undertaken.

“ It is disgraceful what they will do. So, they will put you on payment terms of 30 days [...] once the ticket has arrived, net that month. So, if you got the wrong month, you'll be waiting 60 since that timber's been picked up. [...] So, you could have cut the tree on the 1st of January, it might not move until the 1st of March. Then you won't see payment to the end of April. [...] That is how they will operate if they can get away with it. When sawmills, they manage it very, very carefully, they sit on stock in the woods. They do not like to do [...] what we call payments on account for roadside stock, they just want to do it on timber into the mill. [...]

*Big, big companies who have got a lot of power, and they will do it to a lot of people. You've basically bankrolled the operation. And that is a big, big, problem with companies all over [...] all over England, Scotland and Wales."*

**Harvesting company**

“ No word of a lie, I can get tickets through that we've done the work for six months ago. Yeah, and that's not uncommon. That is no way to ask a contractor to run a business."

**Harvesting company**

“ These big sawmills have the portfolio of work on the books so contractors are attracted to these people. Once they get in bed with them and the sawmill decides to slow the collection of timber down, they won't get paid for that wood until you know it's probably too late really...sorry that's depressing."

**Harvesting company**

The above insight was built on data reported by 13 participants across 16 instances spanning the following categories: harvesting contractors, woodland advisors, woodland managers, timber hauliers, sawmillers, and people in construction.





## Mismatch between small and large companies

The construction industry is dominated by big players whose standard processes are comprehensive. If smaller timber businesses are to be part of their supply chain, they need to fit into complex and, at times, unfeasible processes.

### Complex data requirements

In order to assess a supplier's ability to deliver a work package large construction companies require vast amounts of data from their suppliers. For example, the Common Assessment Standard, used to assess whether they meet pre-qualification requirements, needs information on the business around financial security, health and safety, environment, corporate social responsibility.

### Certification requirements

Additional requirements can be driven by building certification or rating systems such as Building Research Establishment Environmental Assessment Methodology (BREEAM) and Leadership in Energy and Environmental Design (LEED). For timber the focus is that it is sustainably sourced; this tends to be simplified down as a contractual requirement for timber to be certified e.g. FSC or PEFC.

### Communication

Construction companies, even smaller ones, have spoken about how the speed and methods of communications of timber suppliers is a challenge. They find it difficult to get information on timber availability and pricing, and transaction progress.

“Slowness of communication that gets me annoyed and like having to rely on the timescales that they work to when we are working quite rapidly and then everything has to stop whilst you wait.”

**Construction**

More generally the administration operations of some sawmills feel, as one interviewee put it, “archaic”, such as still using paper invoices rather than online systems. These are incompatible with larger construction companies due to the inefficiencies and extra legwork this produces to get the information they need.

### Capacity

Big companies do not give big contracts to smaller companies because they simply do not have the capacity to satisfy them, or there is a risk they fail in trying to do so. This is a particular concern for design and build contracts where the construction company has taken on a lot of risk in agreeing to deliver the project for a fixed cost. They then look to pass that risk down the supply chain. This is a problem if, for example, material prices rise, as smaller companies struggle to manage that risk.

Conversely small construction cannot access timber straight from large suppliers. In one case the large supplier was unwilling to take on the financial risk posed by the small construction company, and in others the quantities of timber they wanted to buy were too small for the sawmills to engage with.

Small sawmills are unable to take part in larger timber transactions due to lack of capital to buy it, storage space, and being unable to guarantee moving it within the allotted time frames.

Small and large parties find themselves unable to interact with one another directly. In some cases they may be able to rely on third parties to mediate.

## Woodland financial viability

All the above feeds down to the woodlands where the issue of scale is acutely felt by woodland owners as ultimately a lack of financial viability. Often, either the volume of timber is not sufficient to pay for managing the wood, or it is not enough to be worth the effort and disruption. Whilst many factors contribute to this such as a lack of historical management, infrastructure and fixed costs, some are related to the scale at which the industry currently operates. For example, the timber industry is based around the lorry load with partial loads often left stranded in the wood as they are deemed uneconomical to transport. However, sawmills with harvesting operations and or direct access to local woodlands have expressed the strong benefits of being able to access smaller timber parcels, often on a demand-led basis.

The above insight was built on data reported by 10 participants across 12 instances spanning the following categories: woodland managers, woodland advisors, sawmillers, and people in construction. It is noted that among these the majority were people in construction.

## Homegrown timber is difficult to access

Throughout this study we have witnessed varying perspectives from different actors regarding their difficulties employing local timber. These have been detailed below:

### Lack of availability

The perception of local wood held by construction is one defined by lack of availability.

“ If you're buying certified timber, I don't think there's a huge amount. This is probably available in [from] the UK. A lot of it is European [...]

*Well, I wouldn't say we were specifically looking for it, it was just we wouldn't specify Grown in Britain necessarily or British. It just very, very rarely came from the UK.”*

**Construction**

There exists a disparity in the process of ordering off-the-shelf timber from a timber supplier or merchants and the process required to intentionally procure homegrown or locally produced timber. Despite best efforts some companies have been unable to purchase homegrown timber. As part of the research, we anecdotally heard from three separate construction companies who had come to the conclusion that the practical solution left to them was to purchase a forest. While not part of the interview data, we believe this to be worth including as a pattern where, irrespective of how serious they were, the relevance is that they actually considered doing it.

For those who have successfully procured local timber, timing was an issue. Construction companies organise their work around tight schedules with the need for just-in-time procurement driven by a lack of suitable storage space on site, and storage also at a premium within manufacturing facilities. So even for elements where the construction company is able to give the supplier a long lead time, the ability to deliver next day is important.

### Product consistency

With timber generally, companies have found significant dimensional differences between standardised products from different suppliers. Off-site manufacturing is particularly sensitive to this for products that are certified against certain tolerances. A perception exists that homegrown timber is less consistent and therefore comes with the additional hassle of higher rejection rates.

## Perception of cost

Construction companies and their clients tend to perceive local wood as expensive. Where local wood is specified, they do not think it is competitively priced. This is exacerbated by the time necessary to satisfy their procurement data requirements, as well as the risk associated with novel procurement routes. Cost and additional risk are acutely felt in the industry due to low profit margins where any creep in costs can wipe out profits.

## Decision-making agency

Materials specification and procurement in large projects sits across multiple organisations and roles: the client, architects, structural engineers, interior designers, and the procurement team - all of which are trying to meet various requirements that restrict what can be specified. Because of this, individuals cannot specify homegrown timber.

““ For many local authority residential projects, there is normally a predetermined interiors specification matrix, which is at times frustrating because they are not the most appropriate materials or systems, but the authority has signed a contract a long time ago. There may be horrible doors that you have to specify – I have only found one door that you can specify which gives you the required fire, Secured-by-Design and acoustic ratings. You would never want it on your house but it's the only door that meets the requirements. Very often, for these systems, the life cycle analysis doesn't come out great. Right now, thankfully, we are reviewing their internal specification matrix so hopefully we can influence this for future projects but right now all we are able to do is pick a colour.

**Architect**

The above insight was built on data reported by 12 participants across 19 instances spanning the following categories: woodland owners, woodland advisors, sawmillers, and people in construction. It is noted that among these the majority were sawmillers and people in construction.

## Routes to market for small timber parcels are not readily apparent

While demand for small timber parcels exists, it is not well advertised.

## Supply/demand disconnect

Small timber parcels are continually available for purchase but are not widely marketed. As a result, potential buyers find themselves unable to identify them or purchase them. Trade in small timber parcels works where there are long-standing relationships between sellers and buyers.

Woodland owners experience this as a knowledge problem inasmuch as they think a route to market exists but they haven't discovered it yet:

““ Because I don't really know how to get it to market, I'm a bit of a price taker [...] I've sort of got this feeling that if I knew or had access to more specialised markets, I would be in better stead .”

**Woodland owner**

## Valuable timber goes to less valuable ends

Many people in forestry wish to do their best by every tree, but this is not always possible. Interviewees expressed a desire for a route to market for smaller timber parcels, particularly because more specialised audiences may be able to better appreciate its unique characteristics. This has been raised primarily as a market issue rather than a timber quality issue. Without a route to alternative markets small parcels of

timber fit for milling go to firewood instead. This issue has been exacerbated by rising fuel costs. A harvesting contractor has voiced their exasperation towards this phenomenon: “We’ve got to change what we’re doing but I don’t know if we can”.

The above insight was built on data reported by nine participants across 14 instances spanning the following categories: woodland owners, woodland advisors, harvesting contractors and sawmillers. It is noted that although the vast majority of these were woodland owners this should not lead the reader to assume that woodland managers do not experience this issue.

## Micro woodlands sales leads to less timber

The practice of selling micro woodlands has been a growing trend. These are understood to average between two and 10 acres, although some are bigger. While it may be true that in principle this broadens access to woodland ownership (the importance of which was remarked on by many respondents), various participants have been vocal about the issues resulting from this shift. Sawmills in particular see this as a worrying trend whereby sites they have previously harvested are being sold off in lots: “It should be illegal” (sawmiller).

“ I don’t like it, I really dislike it [...] I don’t 100% dislike it because a very small percentage to me is that I love anything that gets more and more people engaged and invested with woodlands [...] The problem is you’ve got a woodland that’s now broken up into a dozen parcels, and each one of those people, each one of those 12 plots will have different ideas of what they want from it. [...] My problem is that I really feel like there could be a better model for

“ this rather than having to own this patch and then not manage it. [...] You are lucky if one or two of those plots do some proper kind of thought-out management, it’s very bitty and woodlands don’t work like that.”

Woodland advisor

## Less informed woodland management

Woodland management conducted by less experienced or informed people leads to less healthy woodlands. For example, woodland advisors have observed that within their region woodlands with “tremendous” timber resources are sold off in parcels, but the woodland management activity undertaken was to clear the understorey, i.e. the next generation of trees. They see the issue as a “time-bomb” because they are going to end up having to undertake clear fells because they are not undertaking the necessary thinning to ensure wind stability.

## Less timber is entering the forestry market

Even if the owner does want to harvest timber, the current lack of appropriate infrastructure means that the size of the lots is often below what is currently economical or practical to harvest. Additionally, sawmills gave examples where they have gone to buy some standing timber but found themselves unable to fell it due to the large numbers of owners on either side of the boundary which limited where they can fell and transport the trees.

The above insight was built on data reported by five participants across five instances spanning the following categories: woodland owners, woodland managers, timber hauliers, and sawmillers.



# Value

## Timber prices cannot reflect its true value

Timber prices cannot reflect the actual value of the raw material and labour necessary to produce it. A tension exists between the requirement to produce a commodity that can compete with international markets and alternative materials, and a product that reflects the fuller social and environmental value of woodlands.

“If you were to price up every single stage [of the journey of timber], then it'd be lunacy. I mean, if you were to make plastic bottles and apply that same philosophy to make a plastic bottle, you know, people just wouldn't make them. But with timber because we've got an end resource that comes from something that needs managing, we need to look after it, we need to look after woodlands or they fall into disrepair you know, and that story isn't part of those products.”  
Sawmill

The main drivers of this were described to be:

### Perception of wood as a endlessly available

Substances that are perceived to be infinitely renewable do not amass value in modern market dynamics and are taken for granted. This also stops those using it from questioning how they use it leading to inefficient practices and unnecessary waste.

### International competition

There is competition from e.g. Scandinavian countries which grow and process much higher volumes of softwoods, and from countries such as France that have maintained active management of their hardwoods and the associated infrastructure. In

addition to general price pressure, the ability to import significant volumes compared with local markets contributes to price volatility.

### Material competition

Alternative materials that are less expensive to produce are able to undercut wood in different sections of different markets.

The above has substantial industry consequences:

### Oversimplification

In trying to commodify wood as a resource the industry has flattened demand to very few species, mainly softwood and easily processable formats. The drive for straight logs of a certain diameter with consistent properties has led to consolidation of industry, and a bias towards simplified silviculture.

### Undermanagement

Low timber values mean that for a lot of woodland owners it is not worth the effort to manage their woods, impacting the long-term ability to produce timber.

### Recruitment issues

Pay in the forestry sector is generally unfavourable relative to both the work it requires and to other industries. The increase in timber prices has not trickled down to contractors who feel increasingly squeezed, particularly when looking at comparable roles in construction, for example. For most of the people who work in forestry, this is a labour of love, and they are more prone to compromise on remuneration.

“ We are struggling for operators now. I train up two people every year. I'll be lucky to get one out of every three years. [...] That's if they make the year. It's a real struggle to get good young people into this industry”  
**Harvesting company**

### Practice lock-in

The culmination of previous points suggest that industry practices may have become so entrenched as to produce a level of lock-in that impedes the emergence of alternatives to the norm, such as a growth of smaller-scale operations and markets for a wider variety of timbers.

The above insight was built on data reported by 14 participants across 19 instances spanning the following categories: woodland managers, and woodland advisors, harvesting contractors, timber hauliers, sawmillers, and people in construction.

## Increasing pressures on contractor and sawmill viability

### Contractors hold a lot of risk

As discussed above, sawmills, harvesting contractors and timber hauliers are drawn to the industry for the interesting challenges and unique rewards it brings. However, financial struggles combined with unfair treatment is severely testing this for some. A haulier company we spoke to already no longer works in the timber industry.

“ If you keep knocking these people back, there's no incentive to stay in the industry. It just makes it too difficult.”  
**Harvesting company**

Contractors have capital intensive businesses, and as such, want a secure programme of work for each machine.

This becomes unattainable when tenders are offered to the market for a job to be started the next month. This makes it difficult to plan and have a sufficient number of jobs lined up to provide financial security. In addition, the seasonality of work squeezes the window during which clients want machines on their site meaning that machines may be parked for periods of time.

### Rising costs

Rapidly rising operational costs, such as dramatic increases in electricity pricing and fuel affects both contractors and sawmillers. Those in construction experience the knock-on increases and volatility of timber prices. Cost pressure has led to price hikes and these may be beyond what the market is able to bear.

“ People will have to pay a new price for timber or we're not cutting timber anymore. [...] [Because] we're no longer a business at that point. We went from a £10,000 [electricity] bill a month to £40,000 a month. We have to earn £2,000 a day to pay our electricity bill. We're hoping the price will become sensible but there's no guarantee on that. Every year seems to be a new drama, at the moment its power [...] Electricity [has] now become a big part of our cost. Classically it's labour and raw materials [...] I think our labour is probably the same as prices throughout Europe but if we've all got different electricity costs it is going to skew the market so much that homegrown sawmilling will not survive”  
**Sawmill**

For construction these timber price increases are compounded by chronic planning application delays. If a developer finally gets consent, they may well have based their development appraisal on an economic model that is out of date.

The above insight was built on data reported by 14 participants across 19 instances spanning the following categories: woodland managers, and woodland advisors, harvesting contractors, timber hauliers, sawmillers, and people in construction.

## Rapid changes in price create commitment issues

Price volatility is experienced as a disruptive issue for both log and processed timber sales where it creates a situation in which people are reluctant to commit to a transaction, or risk being penalised if they do. Where there is no room for negotiation, companies that have bought timber prior to a dramatic drop in price are then unable to make the job viable. No mechanisms were discussed, as might be used in other industries, to mitigate such risks.

“Oak is really tough at the moment because [the price] is soaring through the roof. You're frightened to take on big oak orders in the sawmill now because when you buy it in, it might be 20% more expensive than you're anticipating, which obviously bites into your profit.”  
**Sawmill**

“Getting a price for any of the ash was really difficult. It took months to hear back about prices from [the harvesting and timber marketing company] or anyone. So just getting a price on the timber delayed the process by about two or three months. We were trying to get a direct quote from companies like [the harvesting and timber marketing company] to sell the timber roadside but because we couldn't get a price for the firewood, we didn't go down that route of selling at roadside and agreed to sell standing. But selling standing was to [our harvesting contractor] not to the end buyer. [This was the] biggest thing that slowed the whole

process down, was not having the access to a quote for the price of the timber. Realistically, if it wasn't for that, we would've felled the timber in November. So the fact that, yeah, total three month delay shows just how big an impact that had.”

**Woodland manager**

“Suddenly the price of roadside conifer drops down because [a sawmill has brought a boatload of softwoods from Scandinavia]... which then affects all the people that have said I'll buy the standing timber for this price by the time they got it to roadside. Their wood is worth £20/ton less than it was the two months before when they arranged that work.”  
**Sawmill**

The above insight was built on data reported by nine participants across 10 instances spanning the following categories: timber hauliers, sawmillers, and people in construction.

## Lack of confidence in timber volume removed from the wood

During large or run-of-the-mill roadside sales and most standing sales, trees that have been selected for sale are (usually) measured by woodland owners and managers to give volume estimates. Once harvested, these are then collected by hauliers who, (usually) assess the amount of logs they have moved by weight – an initial estimate of which is gained through the flatbed of their lorries (if available) before the official figure is determined at a sawmill weighbridge. The sawmill then produces a self-bill invoice from the delivery ticket, or the seller produces an invoice based on the lorry weigh ticket. This process has some shortcomings:

### Undue reliance on trust

Woodland owners and managers rely on either the self-bill invoices or the lorry



weigh tickets to accurately represent the weight of logs that have been removed from the woodland. It is an unusual dynamic to be reliant on others to tell you what you've sold.

“ So, a lorry goes out of my site, I have literally no idea, I mean unless I'm going to sit at the bottom and actually count the number of lorries that go out, I have no way of knowing whether or not all those lorries that come to me on my list of weight tickets is actually the right number of lorries.”

**Woodland manager**

“ You do feel actually you're in a really vulnerable position and [...] you're in a situation where you've no choice, but you're just naïve basically. My background's farming, so you know, when we grow crops, I know exactly how much I've put into the crop whilst it's been growing and then I know exactly how many tons have taken off that field at the end and I know how much that grain is worth before I sell it. Everything's transparent and it's maybe not a huge amount of profit in it but it was fairly straightforward, transparent and you had a lot more control as well.”

**Woodland owner**

Many examples were given of informal checks to detect discrepancies between their expectations and the invoices. These included: spreadsheets containing log stack measurements and loads moving out of the woodland, lorry ticket systems, and trail cameras to monitor woodland activity. Attempts to use these systems to fully keep track of timber movements involved time-consuming processes and none seemed to satisfactorily solve the issue.

“ My own personal moan with myself is not having some decent bit of software that will convert my stack measures cuz what I'll do is, at the end of a job [...] so the contractor can get paid, is

*measure everything in the loading bay and obviously we'll have a record of what's gone. But more often than not, you know, it takes two or three weeks following the completion of the work for all the timber to go, if not more sometimes. So I'll do a stack measure on a spreadsheet and then I then have to convert that into loads [...] as they go away. And I still haven't found the right way of setting that up. And I seem to spend way too long. Well, all you're doing is recording this one load of wood that's gone from that stack. [...] The [timber measurement] programs that are out there are, you know, are much too techy for my needs as it were.”*

**Woodland manager**

“ If you forgot to get a pin number [the harvesting contractor] wouldn't pay you for the load [...] you weren't supposed to get the pin before you got to the forest because it only lasted for a couple of hours but then these forests don't have phone signal [...] you end up walking about half a mile to get phone signal [...] it's quite pointless [...] if you want to be dishonest and you've got a timber crane and you want to go in at the weekend you're not going to ring up for a pin”

**Haulier**

### **Discrepancies during unit conversion**

Conversion between timber volumes and weights further complicates the marrying of forest measurements and customer invoices. One forest manager talked of checking baseline volume to weight conversion factors against what a sample lorry load was actually measuring.

A significant driver of conversion discrepancies is the loss of moisture from logs if there is a delay between felling and collection. In more formal situations, contractual terms attempt to limit this through penalties for slow

collection of logs, and therefore loss of income to the woodland owner and potentially also the harvesting company if their contractual arrangements are weight related. This however, has the knock-on effect of adding logistical restrictions that penalise small companies. As small sawmills can't collect large volumes of wood in short time frames they need to buy through third parties.

It is noted there were conflicting views amongst participants about whether weight or volume is a more reliable method for determining fairly the amount of wood removed.

### **Inaccuracy of vehicle weighing capability**

Weighing systems available to hauliers on the flatbeds of their lorries are inaccurate enough to produce negative consequences. Multiple individuals described how timber parcels have reached weighbridges at their destinations above the weight limit. This in turn means that hauliers are not paid for any amount over their certified weight limit, and, in one example, an abandoned timber pile has resulted from lorries from leaving the sawmill to dump excess logs on a nearby roadside before returning to be officially weighed.

The above dynamic does not apply to the sales process for valuable logs where these are sold on a volume basis. Either each log is measured individually or the stack is measured, and that measurement is agreed (not without its own challenges) with the buyer.

The above insight was built on data reported by five participants across nine instances spanning the following categories: woodland owners, woodland managers, timber hauliers.

## **Donation of resources by woodland owners as opposed to pure sales**

A pattern exists whereby woodland owners donate or exchange resources rather than taking part in pure sales. As described in the quotes below this is driven by a combination of environmental or social motivations, a lack of understanding of financial value, convenience, and difficulties in bringing timber to market.

One woodland owner was happy for people to take birch poles for horse jumps for free, because it meant they would have a decent birch firewood crop. Others are happy to donate portions of the woodland for environmental reasons, and to encourage social engagement with woodlands:

“We've invited them to basically use a portion of our wood as their workshop, and as part of that when and if any of our tree falls or is about to fall [...] we've offered it to them [...] but the reason we've never charged them for it [...] this is naturally something that would have fallen anyway. We won't give them everything that falls because if it falls it should go back into the earth [...] but we think we can get away with 5%, 10% maybe being offered to them.”

“We've looked at felling and selling wood because we thought maybe that's a great way of making the economics of this self-sustaining. The reason that we didn't like that idea is really when we looked into it the more we realised that it ends up forcing you down. I think it's very hard generally to manage any asset actually to multiple bottom lines”

“It doesn't have to be economic, it can just be, it can just cover its costs and it's a way to sort of sustain a local business [...] or people's engagement in the wood.”  
**Woodland owner 1**

“ I know lots of farmers who will let someone come in and do what they want in terms of thinning the woods, as long as it's at no cost to them because those woods are purely for amenity [...] for shooting or visual pleasure or whatever”  
**Woodland owner 2**

One woodland manager allows local people access to the woods to do small-scale thinning and harvesting. Although it's barely worth the time it takes the woodland manager to do the paperwork, they believe the community should have this access. Another woodland owner sells timber at dramatically undervalued prices, also for social and community reasons:

“ I have one old chap who buys larch for a fencing business. [It] is woefully underpriced and I just sort of assume that the guy's gonna retire in a couple of months and he never does.”  
**Woodland owner 2**

The same woodland owner has sold walnut trunks at cost to a social enterprise:

“ I got [X] for the two trunks...in the end I said to myself, I don't wanna know what that was really worth. I covered my costs and then some [...] I do want to know next time a walnut tree comes down what I could get for it.”  
**Woodland owner 2**

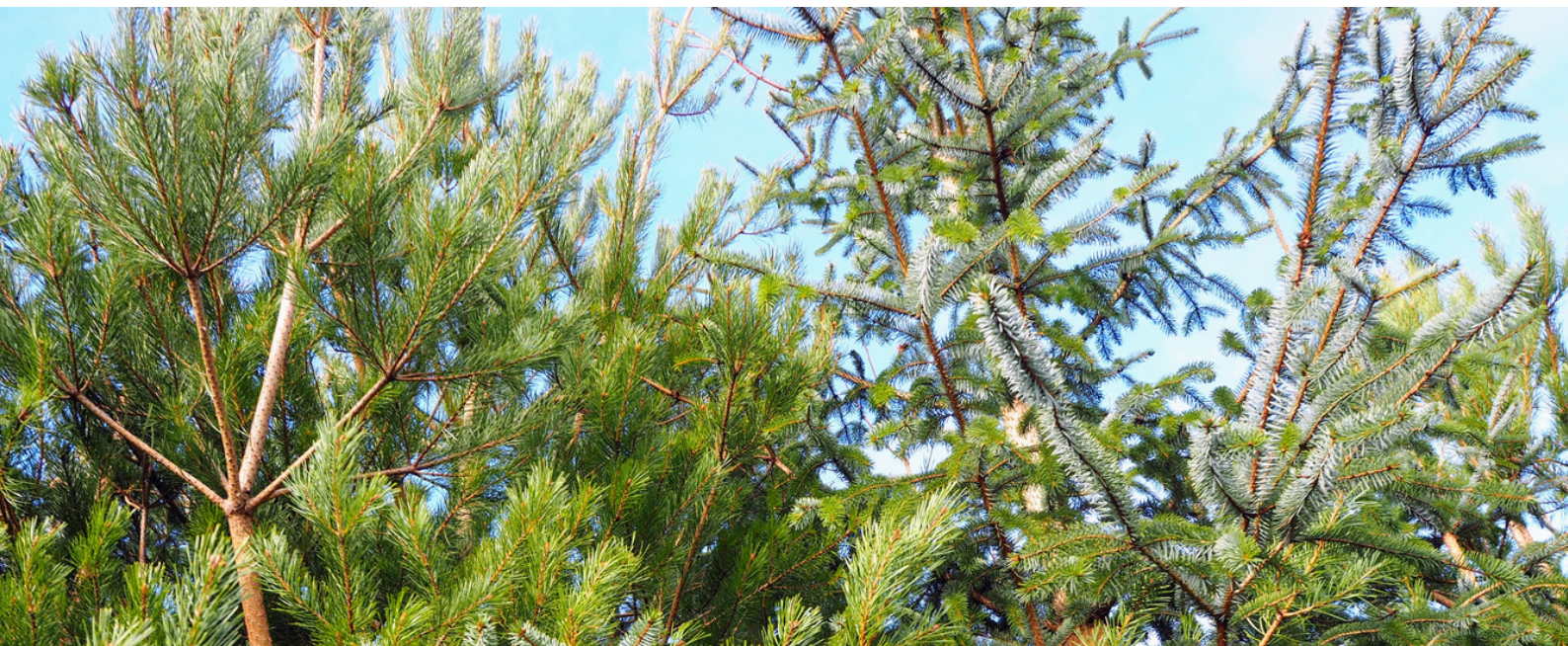
Yet another inherited a woodland from his father who had little interest in selling timber:

“ My dad wasn't interested in selling wood, he had a deal with one guy who sells logs [...] and they did all the hard work of sawing it all up. And then they gave my dad a couple of planks out of that and I just saw them carting off this beautiful walnut. [...] I think he just didn't realise the value of what we had.”  
**Woodland owner 3**

In some cases, harvesting contractors are taking an undisclosed amount of timber to pay for a job:

“ The contractor that harvested the timber basically took all the best stuff to pay for his job [...] I had no idea how much, we've no idea how much we paid him basically [...] It's quite a strange situation because I would be quite on top of that kind of thing business wise, I tried numerous times just to get an idea of what the deal is and how does it work but it seems so informal. It's almost impenetrable.”  
**Woodland owner 4**

The above insight was built on data reported by five participants across 11 instances spanning the following categories: woodland owners and woodland managers.



# Communications

## Lack of communication prevents cohesive cooperation

It appears that at the root of many issues currently affecting the UK timber supply chain is a lack of communication among individuals and organisations within, and outwith, the forestry industry. The upshot is a general difficulty in coordinating efforts, whether that be matching supply with demand, coordinating woodland management activities, arranging logistics, or communicating data.

“The [...] biggest pain in the ass is trying to find certain timbers at certain times because the liaisons between everybody are, they're just awful.”

**Sawmill**

Logistics in particular can quickly become time consuming, requiring coordinated activities between multiple different parties, and hampered by significant delays between responses from the parties involved.

Communicating accurate data between actors is complicated at times by a lack of standard formats. Two specific examples raised were: communicating forest inventory data to a harvesting company with the aim of detailing a harvesting job; and timber product information supplied to construction. Construction companies are used to receiving all the information they need in digital format but when dealing with the timber industry find themselves having to do a lot of extra work to get the information they need e.g. to be able to report on embodied carbon on their project.

“So I think that's the biggest challenge for me was not just finding the people in the first place, it's just keeping the people together. It [would have been] been nice if there was some seamless kinda thing. So within the steel industry there's particular supply chains we use, they have like a dashboard that you would log onto and you would place your order. Throughout that whole dashboard, through the time of being processed to the time it goes onto the delivery chart, every stage is on that sort of cloud platform and you can set it up to notifications and even tells you that what type of lorry is due to come into certain places and how many miles it's doing, what the driver's name is, what the registration of the vehicle is, all that type of information that you generally have to have these days for part of your quality policy.”

**Construction**

The above insight was built on data reported by eight participants across 12 instances spanning the following categories: woodland owners, woodland managers, sawmillers and people in construction.

## Hauliers are the supply chain's middlemen

Hauliers interact with most people along the entirety of the timber supply chain and as such are privy to a large part of the information that governs the interactions leading to sales, purchases and other key exchanges.

These informal exchanges generally occur on the back of more formal interactions. A potential buyer, as part of routine on-site chat, might ask the haulier if they know where to find a load of a particular species. In most cases the haulier will have such information readily available as a simple result of their operations.

One participant helpfully summarised this dynamic when describing hauliers' reach: "They know everything before anyone else".

This substantiates the perception that a lot of timber parcels are bought and sold through word of mouth. While not inherently an issue this produces one significant consequence:

### Industry exclusivity

The notion that access to some timber parcels is predicated on the ability to build relationships with haulage companies and come into contact with them at the right time. Those who are not able to build such relationships have reduced access to timber parcels.

The above insight was built on data reported by four participants across five instances spanning the following categories: woodland managers, hauliers, and sawmillers.

## Sexism affects everyone

Sexism has been reported by multiple female participants as one of the significant challenges they face in conducting business. They have faced interactions with male counterparts where they expressed prejudicial assumptions relating to expertise, knowledge and or competence. Such assumptions had to be either dismantled or ignored before the conversation could carry on. The consequence of this is the time and effort is wasted navigating interactions with sexist people or approaches. The only male who brought it up witnessed the impact on his partner.

“ I got to a point where I kind of was tired of it and you feel sometimes like you were hitting your head against a brick wall. And I just felt, I don't need to do that.”

**Construction**

Given the shortage of people working in timber and construction it is easy to see that this issue negatively affects everyone along the supply chain as well as the reputation of the industry itself. Other types of discrimination such as racism or homophobia were not raised by interviewees other than by one person who, in response to a draft of this report, highlighted that they are not widely-enough discussed issues.

The above insight was built on data reported by four participants across four instances spanning the following categories: woodland managers, sawmillers and people in construction. It is noted that other than one participant all female participants involved in this study reported on this issue.

# Reliability

## People in forestry are hard to pin down

The forestry sector's standard model is for operations to be outsourced to contractors at various stages. Many of our research participants have reported their difficulties reaching and engaging contractors. The effects of this contribute to other dynamics that occur between woodland owners, managers and harvesting contractors.

### Poor communication

Difficulties reaching woodland managers, harvesting contractors and sawmillers frustrate the process of managing woods, and purchasing timber. This appears to be, at least in part, due to the nature of the sawmillers' work which requires them to spend most of their time actively working the machines. When combined with a reticence to engage with technology, interactions are further delayed. Once engaged, communication challenges remain with woodland owners and managers feeling they have a lack of agency over operations.

“ I spend a lot of my time trying to be very, very precise about exactly what I want to happen [...] and then sometimes what actually happens on sites is totally different.”  
**Woodland manager**

### Lack of timing commitment

A common issue was the inability to hold forestry contractors to agreed timing of operations. Factors contributing to this that arose in interviews included: weather, declining rates for contractors, and declining workforce. The latter two combined are leading in some areas to rhythms of work which are fast becoming unsustainable. As one person put it: [There are] so few contractors in my area, there's just not enough people doing it now.”

With multiple restrictions on when certain woodland operations can take place the outcome for woodland managers or owners is that they are somewhat held hostage to events.

“ I have a very tight timeline [...] harvesting has to happen between September and the end of January [...] and that's always in the contract. It has to happen in these days. And theoretically that covers the haulage and I can't tell you the number of times the forwarder has gone out on the last week in January.”  
**Woodland manager**

“ He sort of behaved like he was fitting it in as well, you know, so it was kind of, you know it took us months to even get him there but then, you know, you couldn't get him on phone or no reply to text and then all of a sudden he was here getting it done.”  
**Woodland owner**

The above insight was built on data reported by seven participants across 17 instances spanning the following categories: woodland owners, woodland managers, harvesting contractors, sawmillers and people in construction. It is noted that while different categories of participants reported on this issue, most of them were woodland owners.

## Forestry contractor work does not always meet expectations

Exacerbated by communication and timing challenges, the outcomes of forestry operations do not always meet expectations. For these expectations to be realistic the clients and management companies need to properly brief landowners before the job starts, and also to set aside a budget to mulch or rake the site so that it is left in an acceptable manner. Even with this in place things do not always go to plan; as one woodland manager put it: "It's all still based on trust. When it doesn't work, it really doesn't work."

### Bumps in the road

With the potential to significantly impact the health of the woodland, its infrastructure and value of the standing timber, harvesting relationships are particularly fraught. Once damage is done it is hard, if not impossible, to undo and with information lost in translation it is difficult to hold those responsible accountable.

“People make weird decisions all the time. Things that I just don't understand, like there was one really good contractor and then suddenly decided to run his machine all the way down my road with his tracks on and I'm like, why?”

**Woodland manager**

Larger purpose-built forestry machinery is more efficient and provides a safer working environment but will cause damage when used inappropriately on sensitive sites or wet ground conditions. This requires detailed knowledge, for example: that brush mats made from ash with dieback require more material. It is important that operators are briefed and monitored appropriately to minimise the risk of damage.

“It's very, very easy to get things wrong [...] You've just got to know what you're doing and you need experience with it, [...] you need someone on site who's conscientious, but also maybe a manager who's there regularly and can see what's going on because soil conditions can change overnight. You need contractors to be properly briefed, and operations with a clear understanding of how they are going to deal with that scenario, and if they don't you could damage a wood forever.”

**Harvesting contractor**

### Unenforceable contracts

One factor that was found to enable these types of dynamics was the widespread absence of contracts or formal agreements made prior to the service taking place, leading to misunderstandings and mutually inconvenient outcomes. The presence of a contract, however, is by no means a guarantee of smooth operations with clauses often unenforceable. The multiple variables that comprise any woodland job make it extremely complex to provide pricing and stick to timings for jobs. These include weather, accessibility, and site condition.

“When you start a job you have no idea [...] Whatever anyone says you have no idea how long it's going to take.”

**Harvesting contractor**

Despite their 20 years of experience, the harvesting contractor we spoke to is still regularly coming across unexpected complications. There is a lot of skill involved in pricing a job sensibly and people often get caught out. This is compounded by the

seasonal nature of the work; delays result in jobs being conducted outside of the ideal weather or ground condition window. These issues are further compounded by declining rates as well as a declining workforce, putting further pressure on those remaining who are already busy given the nature of the job and have little choice but to try their best.

“So, you’ve got five or six clients that want you all at the same time and it just doesn’t work, you know, you’ve got to try and spread it out. Somebody will get caught with ground damage, it’s inevitable.”  
**Harvesting contractor**

Woodland owners and managers are therefore wary about who they allow onto their site, preferring to work with trusted contractors. Woodland owners without access to trusted contractors are at risk of getting misled by less conscientious contractors. A good relationship benefits contractors too:

“If we start a job and it’s going bad very quickly then there’s normally room for negotiations.”  
**Harvesting company**

However, the overall resulting dynamic is that the forest owner or manager feels a lack of agency over outcomes with little route to address issues other than seeking out someone else to carry out the work next time.

“He was in control of the whole process and the deal. Like we, we actually didn’t really have any control over anything. I mean, you walked through the woodland and tried, you know, explained to him that you didn’t want [...] rampant destruction and so on. But it was quite destructive.”  
**Woodland owner**

“For certain things it’s like if, if there’s a problem, like we are the ones to have to compromise [...] Sometimes I just have to compromise what I get in order to just get the job done and somehow once they’ve got machines on site, they just tend to, it just gets done the way it’s in their head rather than necessarily the way it’s in my head. [...] I mean it varies between contractors, but yeah, you sometimes just feel like I just have to accept what gets done and I don’t really have that much control over it as you think you should do. [...]”  
**Woodland manager**

“There are some really good operators, [...] so much depends on that harvesting operator in terms of that, that overall result. Especially for the kind of things that I’m doing when you’re trying to encourage regeneration and you’re trying to protect the ground flora and all that kind of stuff. So you really need someone who actually is gonna take that stuff seriously. I suppose I’ve done thinning in that area enough now to know who’s gonna do that. But again, it’s that trusting of like the first time it was somebody new, you just have to hope that they’re actually gonna take on board what you’re telling them and actually do it right. Because again, you just, you can’t be there all the time.”  
**Woodland manager**



“ I think I've learned to be very specific but I mean you do need to be flexible as well and I don't think that's there's not a place for trying to accommodate people, it's just trying to make sure it's about things that I genuinely want to accommodate people for”  
**Woodland manager**

The above insight was built on data reported by seven participants across 18 instances spanning the following categories: woodland owners, woodland managers and harvesting contractors.

## Building forestry knowledge through personal experience is inefficient

Woodland owners struggle to access skilled forestry advisors and contractors; they don't know who is out there and getting hold of them is difficult. When they do, the owners' lack of knowledge of baseline forestry practices makes engaging them difficult. They experience conflicting opinions within the industry and find information inconsistent. Desk-based resources lack sufficient detail to be a reliable resource.

This particularly plays out during harvesting operations where, without knowledge of how operations conventionally function, negotiating with contractors is difficult. This in turn means they “go with the flow” and can end up disappointed.

“ I did find that it's, woodland management is a fairly opaque, difficult to access kind of world of knowledge. [...] It was incredibly complicated to find out who would do that, how we would do that, what's actually required, what it would cost etc. There's no easy place to go figure that out. There's a

“ plethora of random people you can find on the internet, they'll all tell you completely different things. There are a number of things that appear to be great kind of, you know, non-biased sources of information like government stuff, defra etc, but again, my experience of a lot of that was, it was very surface. So there's a lot of, you know your, the first page looked brilliant, when you started to click a bit deeper as it were, there was a sort of amazing lack of real knowledge.”  
**Woodland owner**

“ I mean we've had people from the same organisation walking around some of the woods with us and they say things that are completely contradictory and then they end up having an argument in front of us about what [...] is correct.”

Woodland again, just seems like a very esoteric, slightly random world where, you know, the way people do it is different. [...] and a lot of really contrasting conflicting views, like a lot of people will say completely opposite things to you, even though they sort of are theoretically all experts in wood. So, the lack of that, the lack of transparency and simplicity of achieving that is one of the biggest barriers to us pursuing those, pursuing that course of action.”

**Woodland owner**

“ Doing things in the dark, in the dark almost, and you can't really find any proper guidance anywhere.”  
**Woodland owner**

“ Very much just trial and error, we just cut the wood up and we can see if we can sell it.”  
**Woodland owner**

It was felt by some that accessing forestry training courses, as well as sourcing the necessary funding, was challenging. Both woodland owners and managers build most of their

knowledge through personal experience. This requires time, and substantial instances of trial and error and hard experiences. This also limits their ability to anticipate and plan for forthcoming challenges that otherwise could be mitigated through awareness of precedents.

Importantly, it is noted that there is a substantial gap between standard industry practices and standard industry knowledge across different cohorts and levels of expertise. The result is individuals face challenges without what should be -and in some cases is - widely available knowledge. This knowledge would have been key in preventing such challenges from occurring or addressing them effectively.

At the other end of the supply chain an end customer's understanding of timber can inhibit sales. One sawmill reported having to battle against misinformation from individuals in the construction industry on the suitability of timber for different applications. It was also felt that customers' taste or lack of knowledge of alternatives species mean that certain species are disproportionately favoured leading to a lack of market and therefore waste of other good timber.

The above insight was built on data reported by 10 participants across 14 instances spanning the following categories: woodland owners, woodland managers, harvesting contractors and people in construction. It is noted that most participants reporting on this dynamic were woodland owners.



# Conclusion

Contrary to popular opinion, timber is not a limitlessly renewable resource. The industry is acutely aware of this, but systemic forces can lead to it being treated as such. This can manifest as underutilisation of timber - such as valuable material going to firewood - and as a lack of emphasis on protecting the very ecosystems on which our resource depends.

“ Often they will just see a tree and [...] the ones they cut will be the straightest ones possible. Now, we've got a large market for bends. So we supply a lot of the boat building industry. [...] It might look like a beautiful tree but it's all gnarly and everything. Often, they'll see that and think that's of no use. [...] We can see that and think: Right, that'll be perfect for X, Y and Z industry. [...] We're sat there going, oh, bloody hell, I wish you didn't [...] chop that for firewood. We've got a market for that. There's a lot more money in that.”

**Sawmill**

It is notable that in a horizon scan of issues, “catastrophic forest ecosystem collapse” was ranked by an expert panel as the highest threat for UK forest management.<sup>7</sup> This puts the need for resilience in forests firmly in the spotlight. We need to create forests that can be productive under a wide range of climate, regulatory, market, economic and technological conditions, partnered with flexible supply chains that can react and adapt. The National Wood Strategy<sup>8</sup> calls for two actions to achieve this: 1) Continued development of evidence base and strategy for building woodland resilience, and 2) Build an evidence base on the commercial viability of various silvicultural systems to help forest owners and managers strike the tricky balance between

resilience and commercial viability. Within that second action there lies a paradox: industry's current practices and infrastructure determine what is commercially viable today. The entrenchment of these practices prevents alternative approaches from emerging organically, scaling up and then thriving. With the right underpinnings, some of these alternatives could be equally commercially viable whilst offering greater resilience, resulting in a greater timber inventory overall. So, the question is what should come next?

Some may see the challenges described in this report as an inevitable part of the industry, but they combine to erode the resilience and viability of the timber supply chain and consequently our ability to look after our woodlands.

**The fundamental challenge we face is that the real value of timber is not reflected in its price.**

A tension exists between the requirement to produce a commodity (that can compete with internationally traded material and with alternative materials), and a quality product that embodies the fuller social and environmental value of woodlands. This has substantial consequences for the industry: a bias towards simplified silviculture, undermanagement of woodlands, consolidation of the industry, and low pay and financial stress, particularly in the contracting sector. This may seem an intractable problem but there are various shifts in thinking and behaviour that offer hope.

Firstly, there are initiatives that aim to monetise construction-stored carbon. If successful, this would increase the value of timber in buildings, and therefore the

money in the timber supply chain. With construction carbon storage projects already available for pre-sale<sup>2</sup> this change may come soon.

Secondly, there are initiatives to better monitor and improve the biodiversity impact of businesses. For example, the Taskforce on Nature-related Financial Disclosures has created a framework for companies and investors to monitor, access and disclose risk, dependencies and impacts on nature. Expected to become mandatory,<sup>8</sup> large construction and forestry businesses will be required to report their impacts on biodiversity, making it possible and desirable for purchasers to differentiate between different timber sources and management approaches. This is a step change from Tier 1 construction's current binary categorisation of certified versus non-certified timber. Those working in forests should be increasingly rewarded for efforts to preserve and enhance biodiversity, and to take an integrated approach to the carbon sink (forest), storage (timber) and substitution (construction) roles of trees.<sup>9</sup>

**The other overarching challenge is that, as a whole, the small-scale timber industry is yet to embrace the Information Age.** This is apparent in most of the challenges recounted by participants along the supply chain: an absence of price data; difficulties staying on top of supply and in anticipating demand; an inability to access timber markets or a reliable network of contractors; poor communications; and, importantly, difficulties in acquiring forestry knowledge. This last finding will no doubt surprise some, given the array of organisations and public resources available, and online tools dedicated to building forestry knowledge and supporting decision making. However, forest management and timber begin with ecosystems, so it is perhaps not that

surprising. As William Street, PEFC Chair, said in 2012: "Forestry is not rocket science, it's far more complex, there are more lives at stake". Despite this, addressing the more straightforward information and communication gaps experienced by smaller players in the industry will make life easier for forestry, timber and construction businesses.

Cloudforest was set up to try and address these communication and financial challenges in the small-scale timber industry, and this report clearly reveals the stark impacts that occur.

**The contracting sector, with the significant risks they shoulder, deserves particular attention here.**

Their perspective feels under-represented in discussions of industry issues, and if addressed could make a huge difference to our ability to manage our woodlands. Certainly, those we interviewed wanted better representation and support with negotiations as they currently feel their concerns were getting lost in translation.

“ Maybe if [harvesting and market company] had sat down like this, and listened properly and took it in they might have more hauliers [...]. Well, you never know if they get things right, I could be persuaded back into it.”

**Haulier**

Throughout the supply chain, from forestry to construction, there is a need for increased skills and capacity. Addressing this for forestry operators, hauliers and sawmills seems of paramount importance. Artificial Intelligence might mature to a point where, combined with technology to collect and process site data, it can usefully replace forestry management decision making. However, automated forestry operations seem a long way off yet, particularly if the development

trajectory of self-driving cars is anything to go by.<sup>10</sup> **But training and other initiatives to address skills shortages will fail to deliver if operating a forestry contracting business is commercially unappealing.**

Offsite construction companies, which are often founded with social and environmental objectives embedded in their purpose, seem particularly well-suited to strengthen local wood economies and increase the resilience of the contracting sector. Many of the companies we spoke to envisaged, or were already operating, distributed facilities for hyper-local manufacture of housing. With the right supporting infrastructure in place, a network of distributed manufacturing facilities could stimulate and provide a reliable demand for local forest products, particularly if government policy on construction pipelines, portfolios and longer-term contracting comes into play.<sup>11</sup> More broadly, construction has in recent years recognised the importance of resilient supply chains and has been developing practices that could benefit the timber industry. For example, it is now the norm for large construction firms to report against Prompt Payment Codes that alleviate subcontractor cash flow pressures.

Many organisations have for a long time been striving towards increased woodland and timber economy resilience, and with notable success, but macro forces have often pushed in the opposite direction. Recently however, improved understanding of the importance of and risks to our woodlands has placed woodland resilience firmly on the agenda. The National Wood Strategy and Defra's Timber in Construction Roadmap<sup>12</sup> are evidence of this, with actions identified

towards addressing the systemic barriers facing the forestry industry. The success of a resulting strategy will lie in coordinated action and scalability.

It is in this context that CloudForest will collaborate with people along the supply chain to design, test and implement alternative approaches, aiming to achieve a forestry industry that supports healthy woodlands, homes and communities. We will work locally, building digital tools to connect and coordinate the activities of the timber supply chain. We have been encouraged and inspired by those we have met so far, and **we believe the adaptability of this distributed network of timber organisations will bring increased resilience, and foster a greater number of more rewarding jobs in this vital sector.**

1. Forestry Statistics 2023, Chapter 2: UK-Grown Timber, Forest Research, 2023
2. Bringing woodland into management. The missed opportunities in England and Wales. Royal Forestry Society, 2019
3. Management of existing UK woodlands: An opportunity for green prosperity, The Institute of Chartered Foresters & Chartered Institute of Ecology and Environmental Management, 2023
4. Forestry Statistics 2023, Chapter 2: UK-Grown Timber, Forest Research, 2023
5. Net Zero Technical Report. Committee on Climate Change, 2019
6. Three good starting points are: A horizon scan of issues affecting UK forest management within 50 years, Eleanor R Tew, 2023; Timber in Construction roadmap, Defra, 2023; & The National Wood Strategy, England Forest and Wood-Based Industry Leadership Group, 2023
7. A horizon scan of issues affecting UK forest management within 50 years, Eleanor R Tew et al., 2023
8. The National Wood Strategy, England Forest and Wood-Based Industry Leadership Group, 2023
9. The 3S Framework, Climate Smart Forest Economy Program, 2023. Available at: <https://www.csfep.org/3sframework>
10. Interestingly people were valued by sawmills and construction for their flexibility, ability to rapidly switch between tasks and "pay as you go" costs, whereas too much machinery was seen as a route to bankruptcy.
11. The Construction Playbook, Government Guidance on sourcing and contracting public works projects and programmes, 2022
12. Timber in Construction roadmap, Defra, 2023

# Methodology

CloudForest designed a qualitative study to answer the following research questions:

- What challenges do people along the UK timber supply chain experience?
- How are these challenges experienced by different groups of stakeholders?
- What relationships exist between these challenges?

We conducted a total of 29 semi-structured qualitative interviews of one to one-and-a-half hours with: six woodland owners, five woodland managers, seven sawmillers and seven people in construction\procurement. These were supplemented with four interviews with people who are involved in timber haulage, harvesting and in providing woodland advice. We would have liked to interview more haulage operators and harvesting contractors but, despite enthusiasm from multiple individuals, they proved much harder to pin down for an interview. We also would have liked to interview timber merchants but were unable to find anyone willing to talk to us within the available time. Each person was found either through word of mouth or by an online search. No interviewees were compensated for their participation.

All interviews were conducted through online video calls using interview questions as guidelines to direct the conversation. To avoid bias, we used consistent interview questions across all interviews. Woodland owners were an exception to this because of the different nature of their roles. These

questions were open to avoid leading the conversation down a particular route; occasionally a specific situation was raised to cross-check information from other interviews.

Participants were allowed to expand on each answer to their satisfaction to achieve as detailed a response as possible. Upon having exhausted all planned questions further explanations were requested where needed and interviews were concluded by asking each interviewee if they felt we had omitted any key lines of inquiry from the conversation.

An audio recording of each interview was auto-transcribed into text for the CloudForest team to review and analyse. Each interview was tagged according to themes. Each theme was processed to identify challenges experienced by interviewees. Challenges are descriptions of a situation that the interviewee perceived to cause problems to the running of their operations. The recurrence of a particular challenge across interviews allowed us to monitor which issues arose more frequently, as well as providing increasingly different perspectives on the same, or similar issue. This was then used to group challenges together into more general “insights”. Insights describe a generalised sum of experiences into recognisable patterns that are relevant to understanding the current state of the industry.

# Who we interviewed

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In the following section we provide a broad overview of all participants in order to contextualise the study while ensuring all personal details are kept private. Details such as the size of their operation, time spent in the industry and main motivations for being in business all contribute to the perspectives held by each participant and as such are disclosed.

## Woodland owners

- Rewilder: owner of two woodlands, one large and one small. Driven by ecological values and stewardship of native species. Interested in achieving a self-managing woodland without entering market dynamics. Has not yet sold timber as this is perceived to be at odds with their objective of a self-managing wood.
- Couple, ex-farmer & business person: owner of two small woodlands of a total of 29 acres. Currently working towards a condition where the sum of the two woodlands can provide space for amenity as well as revenue. Has sold timber previously, intends to do it again and is gaining relevant experience in the process in order to bridge initial challenges.
- Architect / farm owner: owner of 40 acres of woodland. Has inherited the farm from a parent who had not received any income from the woods. Initially has milled some windfallen trees with a view to selling sawn timber to generate revenue. More recently is obtaining a 10-year felling licence and also investigating on-farm uses for timber such as fencing materials and hedgelaying stakes.
- Traditional estate owner: owner of more than 500 hectares of woodland. Currently deals in sawlogs, standing timber and firewood as well as using part of the woodland for personal and public amenity.

- Woodland “small holder”: owner of two woodlands, one eight acres and one slightly larger. Committed to employing their woodlands for educational purposes as well as production of wood resources while staying true to values of ecological sustainability and rewilding.
- Woodland “small holder”: owner of two woodlands, one 3.5 acres and the other two acres. Committed to employing their woodlands for educational purposes as well as production of wood resources.

## Woodland managers

- Recently graduated manager of a 35Ha woodland which is situated within a farm and has two compartments: one is ancient woodland made up of conifer and native broadleaf, whereas the other is younger, mostly mixed broadleaf.
- Woodland manager who focuses on regenerative forestry and carbon accounting alongside general woodland management. Over 10 years’ experience. Management is conducted for a range of private clients in Scotland with different types of forests.
- Independent woodland manager with over 35 years’ experience. Clients range from small holders with a couple of hectares to country parks with 130 to 500 Ha.
- Volunteer woodland manager with a few years’ experience at a community woodland in the North-East.
- Ex-woodland manager, now in woodland advisory, with substantial

experience at one of the major forestry consultancy companies at a national level.

### **Sawmillers**

- Sawmill based in the south under the participant's management for over 10 years dealing mostly in hardwoods. They have a preference for locally sourced wood which makes up the vast majority of their product. Strong focus on full traceability and attention for the story of the wood is key for this business.
- Small-scale sawmill based in the south-west supplying mostly local construction companies. The mill has been under the participant's management for over 30 years and they have worked in other areas of the forestry industry.
- Sawmill based in Scotland, set up six years ago by a tree surgeon turned sawyer. Their intention was to ensure wood resources were valued and used for their best possible purpose. When the business opened, it was exclusively dedicated to hardwoods but has since expanded to softwoods. Hardwoods now make up about 10% of their business.
- Sawmiller & woodland manager: managing mixed conifers and broadleaf woodland with a focus on continuous cover forestry.
- Owner of a sawmill adjacent to the woodland. Processes hardwoods and softwoods for clients of various sizes but a tendency towards the smaller end of the scale.
- Long-standing small-scale sawmill situated in the south providing bespoke, made-to-order products to private clients and construction. While the products of the mill are mostly softwoods: Douglas fir and larch, they also deal in hardwoods.
- Sawmill based in the Midlands whose manager has been in the forestry industry for over thirty years. Small scale organisation with additional lines of business such as woodland management and acting as timber merchants.
- Medium-scale sawmill based in the south, processing mostly locally home-grown logs; about two thirds of which are hardwoods, and one third are softwoods.

### **Construction**

- Project manager at company specialising in bespoke, mainly timber frame, new builds, renovations and extensions. These are designed with a sustainability-led approach across all phases of the process. The company is small scale and currently delivering between 1 and 1.5 homes a year.
- Co-founder and director of an off-site house manufacturing company that is in the process of delivering their first homes after a number of years of R&D spent developing their process and products.
- CEO of an off-site design and manufacture organisation, delivering around 100-150 low-carbon affordable homes and commercial buildings annually using bio-based renewable materials. Ambitions to substantially grow the number of projects they deliver each year.
- Executive of the low impact housing division of a large-scale construction company. The company delivers social housing on a national scale, thousands of which have already been built or are on course for delivery. Most of these are constructed off-site with timber the structural material of choice.
- Director of company that provides new build, architectural and design services as well as retrofit work



focused in the south-west of England and the south-east of Wales. They are small scale, focussed on mainstreaming sustainable practices and currently delivering between one and two new build projects a year alongside other work.

- Offsite manufacturing consultant with over 20 years' experience in design, manufacture and installation for both steel and timber frames.
- Sustainability professional with over 10 years' experience in roles including sustainable procurement management and project sustainability manager for a tier 1 / main contractor company.

## Others

- Woodland advisor: working in the public sector with a particular focus on farming.
- Woodland advisor & mobile sawmiller: currently employed at a woodland advisory firm focused primarily on ancient woodland management and restoration. They have also recently set up a mobile sawmill business which is currently in its early stages.
- Director of a haulage company: has left the timber industry after a decade in timber-haulage, they said they had to leave due to declining rates, power imbalance and the fall-out from trust-based relationships falling short. It should be therefore noted that the individual was not currently working in the timber supply chain at the time of our interview but was interested in coming back if things changed.
- Harvesting contractor: manages a timber harvesting company with 15 machines nationwide across 17 operators to conduct jobs from thinning to clearfell. Currently concentrating on ash dieback. Also offers motor manual processes and works with both softwoods and hardwoods for different markets from biomass to high end materials.



# Who we are

At CloudForest we believe that a thriving network of local forestry and timber businesses is fundamental to the health of UK woodlands. Woodlands provide vital habitats, store carbon, and play an important role in providing timber for building and retrofitting healthy, low-carbon homes. Effective management of these woodlands is important to ensure they are resilient to climate change, disease and pests. We envisage that the power of a network connecting forests, people and homes will be in the surprising benefits that emerge, as people make connections, and are able to act on them.

**By building a network that facilitates cooperation and democratises access to reliable information CloudForest can achieve two important things:** 1) create collective efficiencies of scale; and 2) provide people with the information they need for the smart use of wood. The overall outcome will be one of increased ability to achieve silvicultural, environmental, and business objectives.

We see that it is both possible and an imperative to grow local forest economies. This is what CloudForest is setting out to do, and the future of our forests is why we're doing it.

In these future economies, a network of flexible forestry operations makes it possible for small woodlands to be managed profitably. Woodlands of all scales are managed to encourage forest complexity and resilience. This brings a richness of biodiversity, landscape and culture. Nuanced matching of supply and demand allows us to work with timber's variability, designing for what's available to get the most out of each piece. Very little timber is wasted. Innovations in

construction have broadened the palette of species and products that are desired. A proliferation of local sawmills and construction factories means that timber does not have to travel far to find a suitable home. There is more choice: what timber to buy, where to buy it and who to work with. This choice has led to more equitable business relations, stronger businesses, and a more resilient supply chain. Sourcing timber has become a walk in the woods.

There are numerous associations, communities, local wood businesses, and innovative construction companies who already make this happen. They exist in pockets, and CloudForest exists to join them up, to work with them to design and build tools that make it easier for them to find each other and to cohesively act as a nationwide, resilient supply of timber. We have started with CloudForest Marketplace, an online platform to buy and sell UK grown timber and wood products. A Gumtree for trees if you will.

With funding from the Forestry Commission's Woods into Management Forestry Innovation Fund, we are working with *Sylva Foundation*, *Snug Homes*, *Kiss House*, *Evolving Forests* and *Materials in Mind* to further develop our platform. This report is the product of our project's research phase, an effort to diagnose where we should focus our efforts.

We have thoroughly enjoyed listening to those we have interviewed. We wish we could name them all here in order to thank them properly for the time they took out of their businesses to talk to us.

# Acknowledgements

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