“There’s silviculture and there’s logging – that’s two industries”

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INTRODUCTION

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1.1 BACKGROUND

Forestry is one of WorkSafe’s four priority areas because of the high incidence of serious injuries and fatalities. The WorkSafe Forestry programme has been running since 2010 and is currently in a phase of refining its future work.

To inform this next phase of the programme the project team requested research to understand what was happening in the sector, both with respect to changes in practice and behaviour and fatality and injury outcomes. The research sought to explore the point of view of corporates, contractors, workers (crews) in the forestry sector. We sought to understand from their perspective the key issues they face in this sector, what they think has changed and needs to change and what they anticipate will be health and safety issues in the future.

Due to the quality and quantity of the data obtained during the fieldwork, the research team have developed six topic-specific reports of which this is one. Other topic reports cover:

> training
> small-scale forestry
> work-related health
> the Health and Safety at Work Act (2015) and accessing information on Health and Safety
> worker engagement, participation, and representation.

The insights from the Forestry sector research have relevant information for WorkSafe’s three other focus sectors (Agriculture, Construction, Manufacturing) and its fifth national programme (the Canterbury Rebuild) as well as wider initiatives such as the Reducing Harm in New Zealand Workplaces Action Plan, Maruiti 2025, and the Healthy Work Strategic Plan.

1.2 METHOD

The research employed a mixed method approach. This involved drawing on published local and international research in this area, grey literature from other state sector bodies, consultants and forestry related associations; WorkSafe quantitative survey data; ACC claims data; and, qualitative face to face interview and focus group data. The research project involved interviewing: managers of corporate forests; contractors working in corporate forests and focus groups with their crews; we interviewed contractors working on small scale lots and held focus groups with their crews; we interviewed farmers who had woodlots on their farms, both for supplementary income and environmental reasons and in one case as the dominant form of revenue generated on the farm. We also interviewed inspectors and assessment staff and asked them their views/experiences and perceptions of the key issues for small scale (farm forestry) now and what they thought they would be in the future. We reached saturation1 across all areas with a total of 100 participants. All of these interviews were digitally recorded, transcribed verbatim and subject to interpretative analysis. (See Appendix A for more detail).

The research areas were Northland, the East Coast, Central North Island, Manawatu and Otago.
In all of these areas, future wood availability will come from small-scale forest owners who planted in the 1990s. While all areas will experience an increase in wood supply from small scale forestry,

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the Wanganui District is notable for its large number of small scale owners. The 168 470 ha of exotic forest area contributes only 9.4 percent of the national total, the region has 21.7 percent of the nation’s forest owners, 85 percent of whom own less than 40 ha of forest. In terms of employment, it is anticipated that the biggest increases will be between now and 2020 and will be in the Southern North Island, with the smallest increases in Northland/Auckland region. The Central North Island will continue to be the main forestry region.

1.3 INTRODUCTION

Following a high number of fatalities in the sector in 2013 (10 workers), the forestry industry commissioned an Independent Forestry Safety Review. In response to this review, the government proposed a focus on four broad areas: Strengthening Forestry’s Leadership; Strengthening Regulatory Standards; Strengthening Enforcement; and, Strengthening the Workforce. More generally, an emphasis was placed on the need for government and industry to work together to address the high fatality and injury rates in forestry.

In 2013, the market for logs was strong with the average price of wood hitting the highest it had been since December 2010 and September 2013 at $189/cubic metre. In the September 2013 quarter, the highest levels of production were also achieved. Employment rates were also high, with the December 2013 quarter having the highest number in employment since March 2008, at 9,801 Full Time Equivalents (FTE’s).

Workplace injury and fatality rates are pro-cyclical and a number of researchers have explored why it is that economic booms are associated with higher injury and fatality rates and recessions with lower rates of injury and mortality. Some have attributed this to people working longer hours during a boom, an increase in fatigue and work related stress during short booms and workers subsequently being less careful. Other analyses reveal that in boom times people are more likely to report injuries than they are during a recession. Low rates of reporting in a recession are explained by workers fearing that their employer will be more likely to lay off workers who have reported accidents. A more recent analysis of injury and fatality in 16 OECD countries revealed that higher rates in boom times are an outcome of greater reporting of injuries rather than changes in workplace safety.

WHAT IS SILVICULTURE?

Silviculture has been variously defined as:

> the art and science of producing and tending a forest
> the application of silvics in treatment of a forest
> the theory and practice of controlling forest establishment, composition, and growth.

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4 Ministry for Primary Industries.
7 Silvics: the study of the life history and characteristics of forest trees especially as they occur in stands and with particular reference to environmental influences.
Silviculture is practiced in corporate, private and small-scale forests and typically involves planting, thinning and the pruning of stands, but more broadly can involve addressing soil health and the use of herbicides and pesticides, the latter is often overseen by the forest manager. This commonly involves contracting in the services of silviculture contractors. This research involved those engaged in planting, pruning and thinning.

The management of corporate forests can differ from the management of private and or small-scale forests. International research on non-industrial private forest (NIPF) owners has found the investment decisions of these forests is often resourced by savings, rather than forest enterprise economics. Others have noted that private forest owners see the forest as capital reserve, or future liquidity asset, not as an enterprise. These views can have implications in terms of how the work is done and by whom, for example, contracting out for silviculture may not happen as family labour/or friend/co-owner labour may be used instead.

In New Zealand, there is an evident trend across the industry, where unpruned without production thinning has increased four percent since 2013, and there has been a three percent decrease of pruned without production thinning practices. The reduction reflects the goal of reducing forest management costs and also has economic implications for those contracting services for silviculture in the sector. In addition to the reduced use of silviculture crews in corporate forests, there is variable use of silviculture crews in small-scale forests on farms, with many farmers taking responsibility for the planting, application of silvics and thinning their stands, often with the help of family members. Off-farm private small scale forests have complex ownership structures, which involve a range of work and employment features and a degree of outsourcing for harvesting and silviculture. The varying motivations for the establishment of these forests – from investment, investment for and by family, conservation and preservation and sometimes a combination of all also shapes whether or not silviculture is contracted out to silviculture crews. Ultimately, however, how well a forest has been managed will impact on what can be financially realised from the timber when clear felled. Poor management of stands on difficult sites will impact negatively on returns and in some instances will mean that the stand is not harvested. Poor management ironically then could have a positive impact on injury and fatality outcomes (when no thinning is done and a clear fell is not executed on steep sites).

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11 NEFD 2014.
FINDINGS

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SECTION 2.0 FINDINGS

2.1 OCCUPATIONAL HEALTH FOR SILVICULTURE WORKERS

Silviculture crews are at risk of a range of occupational health issues, some of which are the same as those engaged in harvesting operations and others which are more specifically linked to the tasks that they specialise in providing.

Musculoskeletal issues are linked to the use of specific tools and the task of manual tree planting. Manual tree planting requires prolonged and repetitive non-neural postures. In North America planters have reported greatest pain in their wrists and feet, back pain is the most commonly reported symptom and pain scores for almost all areas of the body increase significantly over the course of the planting season. For those engaged in thinning and pruning and the use of chain saws nerve damage related to cumulative vibration exposure are reported and exposure to cold conditions can further increase vibration-induced white finger.

Workers are also exposed to a range of chemicals, including: fertilizers, pesticides, lubricants, diesel and gasoline fuels and their emissions. Herbicide use is more prevalent than pesticide use. Pine foresters/silviculture crews are exposed to fungicides. Generally, less research attention has been paid to the effects of long term low-level exposure to forestry-related chemicals. A Swedish study found increased risk of non-Hodgkin’s lymphoma; however, evidence in North America is mixed for increased risk for non-Hodgkin’s lymphoma associated with exposure to phenoxy herbicides. Exposure to dust and particulates amongst workers exposed to wood dust increases cancer risk, primarily nasal cancer.

Silviculture work involves high levels of physical exertion, carrying heavy loads when pruning and exposure to a heat and sun. As with other outdoor workers, skin cancer is a significant issue for those engaged in silviculture and exposure to heat contributes to dehydration and in some cases heat stroke symptoms. In some regions, exposure to cold and severe weather is common leading in some instances to cold related injury and hypothermia.

In New Zealand, the physical demands of the work can lead to a lack of hydration which contributes to low cognitive performance, reduced physical strength and aerobic ability, and can make the worker more prone to illnesses and heatstroke.

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Skin infection following nicks and cuts is common amongst those working in silviculture crews, and as with other forestry workers the risk of infection is also connected to wider public health issues such as poor nutrition, inadequate housing, overcrowding in homes and undermined hygiene. Silviculture workers engage in pruning and in many New Zealand forest sites this means that they carry a ladder and pruning tools on steep sites and frequently have to move through gorse and debris which surrounds immature trees.

For those engaged in pruning and thinning, noise exposure and risk of noise induced hearing loss is a significant issue. With the exception of the relationship between psychosocial factors and musculoskeletal symptoms, there is an absence of research which focuses on psychosocial exposures for silviculture workers and the relationship between poor occupational health outcomes.

The contractors and crews that participated in this research all mentioned the key occupational health issues related to their work practices. All had experienced musculoskeletal issues linked to the tools they use for pruning and manual tree planting; pain in their wrists and feet, lower back pain, cuts nicks and skin infections. All were aware of the risk of skin cancer and that there was a need to wear sun block. All were also aware of the need to remain hydrated.

Contractors mentioned that their crews often had poor nutrition and that this impacted on their ability to sustain physically demanding work. When pruning crew had experienced slips, trips and falls and inexperienced crew commonly experienced slips, trips and falls when planting. Contractors were also aware of noise induced hearing loss and provided their crew with PPE to protect the ears, and clothing to protect the skin when crews were pruning.
There were also a range of other health conditions that impacted on being fit for work and where contractors often provided wider pastoral care in order to retain workers who were in very short supply. As one contractor observed:

*It is a real challenge to get good workers and even like, when we’re planting, to get people even coming to work, we would do a bonus if you come for five days. So if you come for the full week you do a bonus, just to get them to come. And that’s like, you guys would go to work for five days – that’s what you do.*

Contractor

And wider health responsibilities:

*...one was like asthma, and I think that comes down to poor housing and things like that as well. But like, he’s not worked for us and then we had to take him to the hospital because he forgot his inhaler. And that was like, that’s really your own thing. Like, if you’ve got asthma, I bring my inhaler to look after myself. But no, he had forgotten it. So you have to stop, take him into the GP or whatever...*

Contractor

When new to the work, often workers are not prepared, either because they cannot afford to equip themselves adequately, but also because they are not used to physical work.

*Probably when they first start, they would get blisters on their feet because you walk all day when you plant and things like that, and that comes down to also quite often, you get dirt in your boot and things like that. And also, maybe you don’t change your socks. Maybe you wear the same socks the next day. Whereas like, we wouldn’t do that. A lot of that just comes down to upbringings, and maybe you haven’t worked or you haven’t got that much money when you start working. You mightn’t have 10 pairs of socks. You might only have two or three, or whatever. I don’t know, or it’s not a priority, you’d rather buy beer.*

Contractor

### 2.2 LESS GLAMOROUS WORK

...And me, I’m just a thinner and just a worker. Yeah, I’ve been in forestry for about 20 plus years, 25 maybe, plus. I started when the government still owned the forestry and then went into logging and then back into silviculture.

Crew Member
A recurrent theme amongst silviculture contractors and their workers is that this work is the less glamorous side of forestry work and while it is skilled work it is often not recognised as such and not accorded the same status as that of logging operations. This has a number of implications for contractors, primarily recruiting workers into this part of the sector is very difficult and retention of staff is a significant challenge. As is the case internationally it is increasingly difficult to recruit young people into manual work and in particular outdoor manual work. Workers observed that people tended not to stay in silviculture as the rates of pay were not as good as those working for harvesting operators, the status was poor and that the work offered some experience that could be drawn on to secure a job in a harvesting crew. Others observed that increasingly the ability to draw on silviculture experience was dying out and less valued in harvesting sub-sector.

2.3 A MATTER OF FITNESS

More generally, a lack of physical fitness also puts the worker at risk of injury. Fitness was not just about physical fitness it was also about “fitness for work”. Contractors reported that many of the young people that they recruit do not last more than a week when doing planting. The reasons offered were poor nutrition, low levels of fitness, inexperience in doing manual labour and a lack of commitment to this form of employment. When planting the importance of being efficient and fast was stressed as workers are paid piece rates for planting and if they plant less than the minimal wage then the contractor tops up their pay to meet this minimal requirement. Slowness then costs not just the worker but also the employer and the rates paid by corporate forest owners were considered poor and allowed little margin for contractors.

2.4 FELLING AND RISK AND EXCITEMENT

For those working in silviculture and engaged with thinning they also felt they face the same risks as those who are engaged in harvesting when felling. All had experienced trying to addressing a hung up tree, because of poor felling technique, butt rebound, broken limbs or tops, working too close, snag felling and being struck from behind while felling trees. They all stressed that when thinning and pruning, they are working amongst gorse, debris and remaining trees. They are also often working on steep terrain.

...everything I’ve done in the bush I have wanted to do, there’s been times when I haven’t actually been confident to do something in the bush but I wanna do it anyway, you know, it was a sort of excitement thing...

Crew Member

2.5 KEEPING YOUR FOOTING

Silviculture workers often work on steep and uneven terrain and are prone to slips, trips and falls and resultant sprains and strains and broken bones. When pruning, workers use ladders often on unstable terrain and subsequently falls from heights are also an injury issue for these workers.
The contractors stressed that planting involved working in isolation, often on steep and uneven terrain and that the planters not only had to be fit but also agile and had to learn how to place their step while keeping momentum up.

...you know when we go out to cut the wildings and you know you've got some mounds have dips so the near misses is that when you've got undergrowth covering the holes they usually walk and fall in holes...you know, when you tell them in the morning when you have your like daily toolbox, ...we always bring it up, with our mounds, we got mound holes, so we say, work up and down the lines, ‘cos that's usually where the machine will drive the track and it's usually solid...but you always see that person (who walks up the mounds) that'll always trip over, fall over in the, you know, those are the ones...

Crew Member

Most contractors are constantly working with new crew members because of staff retention problems and are also faced with teaching new crew members only to often lose them weeks later. Inexperience is linked to a higher injury rate amongst all forestry workers, often too, inexperienced workers are unaware of the risks and consequently more prone to injury.\textsuperscript{21,22} However, as with harvesting crews, taking risks was also linked to seeking excitement, as noted above.

There are contractors with stable workforces, where the contractor selects carefully in terms of crew fit and where these crew enjoy working in silviculture as much because of what they do as the comradery they have with other crew members. With workforce stability and experience there is less need to constantly address “watching your step”:

\textit{Firstly, you gotta make sure that you've got good footwear, laced up boots, and just watch your step. You know, we're so used to this terrain, this kind of terrain. Somebody that say, came in from an office wouldn't be used to it but you become acclimatised to your environment as well and then you know where you can walk and where you can't walk. If we get to a place that's not safe we'll identify it, we'll isolate it and we'll work around it – not a problem.}

Crew Member

\section*{2.6 HAVING APPROPRIATE PPE WHEN RUNNING A MARATHON}

Some contractors noted that wearing helmets when planting was a health risk. Planting in open areas does not usually involve the risk of head injury and the helmets make people overheat. Or, wearing harnesses when you are pruning 120 trees is not very practical and particularly when working in rough terrain.


The risk of overheating and dehydrating is higher. So sometimes when you work for the bigger companies there’s not a lot of sense involved. You’ve actually got to be able to do the job as well, so they’ve sort of got their rules but they haven’t actually thought of the physicality of the job. I think it’s like, years ago we did some of the Health and Safety courses and its sort of classified with running a marathon. Like, when you do it all day...

Contractor

2.7 THE STATUS TO SAY AND ON BEING SOFT

Challenging somebody who is about to do something risky is still not easy for many in crews and for those who see themselves as workers, they also consider it is not necessarily their place to challenge co-workers. Challenging a co-worker for taking risks challenges the established hierarchy of crew, supervisor, boss.

That’s still a boundary, I think even in this crew it’s a little bit, it’s still a boundary. I mean it’ll get said, but if that fella’s got no ears and still jumps in there with his gumboots and his red bands on and just carries on cutting you know well…it’s still a confidence thing…the workers, and me being one of the workers, I seem him that day (somebody taking an unnecessary risk that ended in harm) that fella just thought it was a joke. Just jumped on and carried on cutting. But I could’ve said something but I never had the confidence to….I think it’s more – oh, for me, for me to start telling people what to do I need that stamp of you’re the boss or I’m, I’m the crew manager.

Crew Member

Some of those working in silviculture crews had also worked in harvesting crews. These men spoke about the working culture where sometimes you did risky things because if you did not comply you risked not being incorporated into the group. For new people this is a significant issue, particularly if they are seeking incorporation into a group that has established risk taking and poor health and safety practice. While these workers were reflecting on their past experience in harvesting crews, they also noted that it still was the case in many crews.

Back then it was all about being a part of the crew, you know, you don’t wanna look like being soft. Anything to make you look soft in a crew (region) when you’re starting up you’re more or less like a p**** or something. And that’s how they’ll take it if you go, oh no, I don’t wanna do this block, it’s too scary, they’ll (say), f**** hurry up you p****. Or something like that, then you’ll, oh, s***, then you’ll go up there.

Crew Member
2.8 LARGELY INVISIBLE

Linked to the view that they were not considered to be as glamorous as those working in harvesting crews, in particular when compared to the Fellers and Breaker Outers, was the sense that they were largely invisible in the sector, undervalued and never the focus of attention in the media or more widely in the sector itself. Many felt that they were viewed as less important (had low status) and that their pay reflected this. This was resented by some as they stressed they too were often at risk when working in New Zealand’s forests and when thinning no less so than harvesting crews.

2.9 TRAINING

There were mixed responses to training, for some they would prefer training to happen on site and for others they would rather it took place in a class room.

*I prefer to do my training on the ground. Easier, especially for myself anyway.*

Crew Member

Yet, another:

*Yeah, it depends on the sorta training it is I think. If it’s sorta training that you need to take in, instead of training to fix up on my cutting and all that, but if its things I need to actually listen (to) then I’d rather do it like in a building instead of out there, ‘cos you’ve already got like a thousand things to think of when you’re thinning. You know, how to cut the tree, where you can walk, what you can do, which tree to pick. Do I leave that, do I take that one. And then having somebody try to train you while you’re thinking that, I just rather make one fall down. P*** off man.*

Crew Member

Others observed that training can help with culture change:

*A better education, a better trained workforce, is all things that help to bring that change in. Some of that has been gradual, like I’m saying, because especially the training aspect, the contractor training his employees, for an example, to be fully competent. Sometimes it is a pain because the goalposts are changing all the time, you know. One day you’re qualified and next thing you’ve gotta get something else to do the same work.*

Owner
2.10 CHANGE – A GRADUAL PROCESS

Some contractors spoke of the change they had seen in the sector, in terms of addressing health and safety but also specifically shifts in the drug culture. Some observed that in silviculture the drug culture is quite entrenched and this is in part because a lot of the work is repetitive and ‘boring’ and that workers spend most of the day working alone. Some contractors had addressed this with a no drug policy but as one observed the change has been a gradual process:

“It’s been a gradual process – let me give you an example; say, for instance, a high amount of the (region) workforce had a drug culture and when there was an introduction of drug testing, people either wanted to change their culture or they moved out of the industry and did something else. That was a big move. I’d say if you drug tested the crews five, ten years ago, 60 percent of the workforce would have been gone...But the culture changes like, “Do I really want to be working with somebody that is out of it?” you know, and what’s more important? A safe work environment where everybody goes home, or somebody that’s been out of it coming in and being a danger to the rest of the fellas? So, a lot of that was actually peer pressure and fellas that, you know, I mean if they were heavy users they eventually were moved out of the industry. If they were passive users, you know, for myself, personally, what a fella does in his own time ain’t none of my business but if it has an impact on the work side it becomes my business.

Contractor

2.11 PROVIDING PRACTICAL INFORMATION

Contractors spoke of WorkSafe having a role in providing practical information about the legislation and what they could be doing to bring about change on the ground. They also stressed the need for inspectors to talk to workers when on site and wanted more engagement and information provision directly to workers.

I think like, there’s information that’s being made available in practical terms that, you know, you don’t have to have a lawyer’s degree to suss it all out. That’s one good way, and then being able to educate guys on changes. I mean, even seminars on changes where not only the contractors but actually the guys can get in, so it’s not just the contractor’s responsibility to relay the information but it can come – instead of going mouth to mouth, it can come straight from the horse’s mouth, so to speak. That’s always a good thing.

Contractor
RESEARCH AND EVALUATION “THERE’S SILVICULTURE AND THERE’S LOGGING – THAT’S TWO INDUSTRIES”

THE SILVICULTURE BUSINESS

Silviculture contractors can be classified as small to medium sized businesses (SMEs); which are vulnerable to the vagaries of commodity prices fluctuations for primary products, operate in a constrained labour market, where there are significant issues with respect to recruitment and retention of semi- to skilled manual labour. Silviculture companies are usually owner operated and employ a small number of staff (if any) – either in permanent or in temporary or casual roles and these small to medium sized businesses can be economically precarious particularly more recently with changes in practice that have seen a decline in thinning and pruning. Planting and pruning often involves working alone and these workers are exposed to range of exposures that put them at risk of injury and fatality.

There is a growing body of research evidence that suggests that there are a range of special conditions typical of small to medium sized businesses that have health and safety implications. It is well documented that Small to Medium sized Enterprises (SMEs) have higher accident rates, have high serious injury rates, and fatalities, and a larger magnitude of ‘lost work days’ when compared to larger enterprises (LEs). These outcomes have been attributed to limited human, economic and technical resource. A range of other issues have also been documented, including the role that a low level of occurrence of accidents and injuries has on the perception of risk, which in turn shapes the manner in which risk is addressed and where it stands with respect to managerial priority. When injury outcome is severe or fatal, health and safety becomes more of a managerial priority – unfortunately by this stage, it is obviously too late.

In addition, with SMEs they are often owner operated and involve a small team, health and safety is usually relegated as less of a priority in relation to a range of other tasks that are perceived to be essential. More essential is usually that which keeps the business economically viable, and this will be addressing book work, tendering for further work and making sure that which is under contract is completed on time. Health and Safety is not typically considered economically essential, indeed it is often perceived to be a drain on economic resources. It is not uncommon for the small team to be provided with the necessary Personal Protective Equipment (PPE) and

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30 Our research confirms this, where many of the contractors spoke of the economic burden of having to comply with current legislative requirements.
SECTION 3.0 DISCUSSION

then be left to manage their safety, while at work.\(^{32}\) These same workers often work alone – or at least are frequently geographically removed from their colleagues (in construction, farming, forestry). These workers will report that their employer does care about their safety, but ultimately it is up to them to make sure they stay safe while at work.

The challenge here is addressing prevention and preventive measures that can reach all SMEs – in this instance silviculture crews operating throughout New Zealand in corporate and small scale private forests. Further, there is some research evidence that suggests that we should be careful about lumping together Small and Medium sized enterprises, and that it is probably more fruitful in terms of the design of any organisational safety and health management system to address micro, small, and medium sized enterprises.\(^{33}\) This research suggests that the larger the size of the enterprise the more likely they are to invest in health and safety, the smaller the enterprise the more likely they are to perceive the inadequacies of the legislation in relation to their enterprise and the more likely that they will be sensitive to the relevance of health and safety training.\(^{34}\)

We know from our research on small scale forestry\(^{35}\) and in particular forestry on farms that silviculture practice is often undertaken by the farmer and or family members and that formalised health and safety management is minimal – or if being considered is perceived to be overwhelming and burdensome. Health and Safety is more commonly addressed in an informal manner, but since the passing of the Legislation there has been an increase in concern around issues of liability and a move toward wanting to document any plan or agreement between a contractor and the farmer or the private small scale forest owner/s. It appears that there is a shift occurring away from informal and ad hoc responses to health and safety toward formalisation, but it seems fair at this stage to say that this may be more about compliance and a fear of liability, than a substantial shift in behaviour or changed practices or procedures aimed at improving health and safety outcomes.

SAFETY AND EMPLOYEE TURNOVER

There is a body of research that has focused on the relationship between employee turnover and accidents, and the relationship between team instability due to absenteeism and occupational accidents.\(^ {36,37}\) This research revealed that employee turnover was an issue for silviculture contractors and that recruiting skilled and or experienced staff was also an issue. Research suggests that inexperienced workers may be at greater risk of injury. In forestry and other industries (eg coal mining) it has been argued that new workers have a lack of familiarity with the characteristics of particular machinery, the work environment, methods and the people


\(^{33}\) Micheli & Cagno (2010) ibid.

\(^{34}\) ibid.


that they will be working with and it is the absence of familiarity that places them (and their co-workers) at risk. In New Zealand, Bentley et al. (2005) observed that 44 percent of injuries on logging skid sites occur within the first year of the worker’s time on the job, with 32 percent of injuries occurring in the first six months. New employees are inducted into a company’s safety processes (to familiarise them with the processes, new machines, context and fellow workers). Yet how safety processes are perceived is important in terms of safety behaviours. This body of research demonstrates that ‘trust’ is a core issue. A number of studies have found that a degree of distrust in the company processes is advantageous to safety as trust can serve to reduce an individuals’ inclination to monitor and safeguard themselves. Yet, while trust is negatively associated with employees’ taking personal responsibility for safety, trust in management can increase an employee’s engagement with safety behaviours and reduce accident rates and is positively associated to injury rates. Further, research into issues around ‘trust’ amongst contractors and crews (n=232, response rate of 98.7 percent) revealed that not trusting new team members could be advantageous; and conversely the team might have a negative impact on a new team members safety behaviours – and the new team member should be distrustful of the existing team culture around safety.

38 Goodman & Garber (1988) ibid.
This research found a common belief that while silviculture and harvesting are considered to be the same industry under a forestry umbrella, and silviculture has often been a pathway to a harvesting career – the two sub-industries viewed themselves as distinct groups. It was also evident that they were regarded differently by WorkSafe, with harvesting crews receiving greater focus in terms of assessment activity than silviculture. There are some differences in the exposure to health risks between harvesting and silviculture, with silviculture crews more likely to be exposed to fungicides and herbicides. The musculoskeletal issues associated with planting also differ from those experienced by harvesting crews. However, silviculture crews are exposed to many of the same risks that harvesting crews are exposed to and face similar issues to harvesting in terms of recruitment and retention of staff, training accessibility and interpreting the new legislation. The two sub-industries are more similar than they are dissimilar and this research suggests that silviculture crews should receive greater focus in assessment activity going forward.
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Appendix A: Methods
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The research involved a mixed-method approach, using both quantitative survey and claims data and qualitative interview and focus group data. The quantitative data provides us with an observation of what change has occurred over time. The qualitative interviewing and focus groups provide an insight and understanding of the views of those in the sector and their explanations of what has changed and why.

ACC AND WORKSAFE DATA
The research examined data from both ACC claims and WorkSafe’s Guardian databases. The data provides a record of the rates of serious harm and severe injuries in the sector over time. The rates were calculated using a Statistics NZ’s Household Labour Force Survey (HLFS) employment levels in the Forestry sector as the denominator. Three numerators were used to produce three rates, these are:

> **Severe injury rate** – based on SWIFT data. The SWIFT data contains the number of employees who experience more than a week away from work (based on weekly compensation claims). ACC pays employees, shareholders and self-employed workers 80 percent of pre-incapacity income but it excludes the first week of incapacity (for employees this is paid by the employer).

> **Serious harm rates** – based on WorkSafe administrative data. WorkSafe administrative data contains the number of fatalities and serious injuries that have been reported to WorkSafe – either through notification or proactive collection.

> **Work-related Entitlement Claims rate** – ACC WorkSafe work account data. These are claims that have progressed past the medical fees only claim category. Compensation and support for returning to independence may have been required.

FOCUS GROUPS WITH WORKERS IN SECTOR
Focus groups provided an opportunity to hear from a greater number of participants than interviewing alone. Focus groups also give participants the opportunity to build off each other’s observations and to discuss with the interviewer. This allows for a multiplicity of views to be recorded in this interactive setting and therefore also allows insight into when and how views differ in this context.

All focus groups were conducted with crews only, no contractors were present; this was to allow staff to be as open and honest as possible without fear of employment repercussions.

INTERVIEWS WITH FORESTRY OWNERS, PRINCIPALS, CONTRACTORS AND WORKERS IN SECTOR
Interviews with managers and staff provide in-depth information on their experience of working in the Forestry sector over the past two years. Interviews give participants the opportunity to discuss issues they may not be comfortable raising in front of a group. It also provides the chance to delve deeper into specific areas that is not possible in a focus group setting.
INTERVIEWS WITH WORKSAFE INSPECTORS AND ASSESSMENT MANAGERS

WorkSafe staff and managers who interacted with the sector over the period were invited to discuss the changes they made to their practice, the changes they became aware of through assessments and investigations, and any other differences in the discussion or attitudes they witnessed during the research period.

HEALTH AND SAFETY ATTITUDES AND BEHAVIOUR SURVEY (HSAB SURVEY)

This survey is run annually by WorkSafe and involves around 290 employers and 380 employees in the forestry sector. It covers a number of questions about the attitudes and awareness of Health and Safety practices and the actions taken by both employees and employers to ensure a healthy and safe workplace. This provides sector level measures of the changes over duration of the research period.

REVIEW OF EXISTING STUDIES

Where applicable, the research draws on existing studies and research to support conclusions drawn from the current research.

ETHICAL CONSIDERATIONS

The research was conducted according to the ethical principles and associated procedures endorsed in the Association for Social Science Researchers.

Ethical considerations apply to the primary data collection – that is the focus groups and interviews with workers and employers in the sector, and interviews with WorkSafe staff. WorkSafe staff were made aware prior to participation that though they will not be identified by name, they may be identifiable by their role within the organisation.

Informed consent was obtained from sector workers and employers participating in the focus groups and interviews and they are not identified personally by name or business. All attempts have been made to ensure confidentiality. If data could not be reported in a way that does not identify individuals from the sector, it was not reported.

Survey data is anonymous to WorkSafe and only figures that are statistically significant and do not identify individuals have been reported in the research.

Some of the data collection took place on site at a forest where harvesting work was being undertaken. A specific safety plan was developed for staff involved, in collaboration with a forestry inspector, to ensure that research staff were not placed at undue risk during the process of data collection. Personal protection equipment was supplied.

Those who participate in the employer and worker interviews and focus groups received a participant acknowledgement in the form of a $30 supermarket voucher. Individuals who participated in both received one voucher. Participants were not made aware of this the voucher prior to participation to ensure there was no external coercion. A reasonable amount of food and drink was provided at the focus groups and interviews. Participants will be provided with a summary of the report findings.
All research data of a confidential nature is locked in a secure cabinet, and electronic data of this nature has been password-protected. Data will be held on site in accordance with the WorkSafe National Records retention policy.

**RESPONSIVENESS TO MĀORI**

The Forestry industry has an over-representation of Māori employed in the sector, with 34.2 percent of employees in Forestry identifying as Māori in 2013, compared with 11.2 percent of the entire workforce identifying as Māori in the same period. This means this project is likely to involve a significant number of Māori workers and employers without any focussed sampling.

Te Ara Tika suggests that in the case of Māori centred research, a research team should consult with Māori Advisors within the Agency about the research approach and the need for Māori input and wider consultation. The research should include Māori fieldwork researchers and should consider Māori project leads and analysis.

At the time of writing, WorkSafe does not currently have Māori advisors. However, the National Manager, Māori was involved in the design of this project. Two members of the research team identify as Māori and will be involved in the fieldwork and analysis.
DISCLAIMER

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