Finding the Balance
Environmental Planning, Forestry and the Decisions Behind a Resilient Forest





ENVIRONMENTAL PLANNER

Sits between legislation, science and what happens on the ground

LEGISLATION
Laws, policies and regulations

SCIENCE
Research, data and environmental knowledge

ON THE GROUND
Forests, people, operations and communities

PLAN
Plan activities and assess environmental effects. Get the right approvals.

COMPLY
Work with teams and contractors to meet consent conditions and legal requirements.

MONITOR
Check, measure and report. Use what we learn to adapt and improve.

Balancing environment, safety, economics and community values **for responsible and resilient forestry.**

When the Rules meet the Real World

"The regulations and the law might read as black and white, but when you're working in a natural environment, it's not always like that."

For Hannah, environmental planning is about more than knowing what the regulations say.

Forestry operates in a complex natural environment, where conditions on the ground don't always fit neatly into black-and-white rules.

Her role involves interpreting legislation and resource consent requirements, then working with operational teams, engineers and contractors to find solutions that are both environmentally responsible and practical.

That can mean balancing several competing factors, environmental protection, worker safety and the economic realities of forestry.

For Hannah, environmental planning is about finding the balance between what the rules require and what can realistically be achieved on the ground.

A regulation might say one thing, but the planner has to consider:

- the terrain
- weather
- soil
- water
- machinery
- contractors
- safety
- economics
- environmental effects.

The Landscape



The environmental planner has to connect what is happening on the ground with the bigger picture. The terrain, weather, soil, water, machinery, people, safety, economics and environmental effects.

The Operation



FROM THE LAW TO THE FOREST

FROM A FORESTRY PLAN TO A RESOURCE CONSENT

Hannah's role is to translate environmental regulations into practical decisions on the ground. For a forestry operation, this means identifying potential effects, assessing the risks and working with engineers, supervisors and contractors to find ways to manage them.

The Forest Practice Guides provide a useful example of how this works in practice. They offer a toolbox of management options for activities such as earthworks, erosion and sediment control, river crossings and harvest slash.

For example, a road through steep forest needs to be designed around terrain, rainfall, soil and water movement.

The Forest Practice Guide on road drainage and stormwater culverts explains how culvert location, spacing and size can be adjusted to manage runoff and reduce erosion.
Learn more: Road drainage and stormwater culverts

Similarly, the high-risk slope harvest slash guide provides options for managing woody debris on vulnerable slopes.
Learn more: Harvest Slash on high risk slopes

These are the kinds of practical considerations Hannah brings together when helping a forestry operation meet its environmental responsibilities.







The Forestry Decision-Making Triangle

Finding the Balance

Environmental planning in forestry is often about finding a balance between competing priorities. A decision that improves one outcome can create another environmental, safety or economic challenge. Hannah describes this as a balancing act "You can't have everything."

A good example is deciding how to recover remaining wood from a steep harvested hillside.

A Real Forestry Dilemma

Recovering as much wood as possible has clear economic value. Machinery can also reduce the need for people to work manually on steep, hazardous terrain, improving worker safety.

However, putting additional machinery onto a steep slope can disturb the ground, potentially increasing erosion and sediment movement into waterways.

An alternative may be to leave some wood and woody debris on the slope. This can reduce machinery movement and, in some circumstances, woody material can help hold soil in place. The trade-off is that some economic value is left behind.

Another possibility is to change the harvesting method or use different machinery. This may allow more wood to be recovered while reducing some risks, but could increase costs or create different environmental impacts. There is no single solution that maximises every outcome.

What an Environmental Planner Considers

The decision can be viewed as a forestry decision-making quadrant, with several interconnected considerations:

Safety
Keeping workers out of dangerous situations and reducing exposure to high-risk tasks.

Environmental
Protecting water, soil, biodiversity, habitats, cultural sites and landscapes.

Economics
The cost of the operation and the value of the wood that can be recovered.

Cultural and community values
The interests, values and expectations of people and communities connected to the land and waterways.

The environmental planner's role is to understand these competing considerations, identify the risks and work with operational teams to find a practical way forward.

The best decision is the one that appropriately balances environmental protection, safety, economic realities and wider values for the particular site and circumstances.

Water, water, water

For Hannah, water is one of the most important considerations when thinking about how forestry operations can be made more resilient. Understanding how water moves through a landscape is fundamental to managing the environmental effects of forestry, particularly on steep terrain and in areas prone to erosion.

Trees play an important role in the movement of water. Their roots take up water from the soil, while their canopy provides an "umbrella" over the ground, intercepting rainfall before it reaches the forest floor. When trees are harvested, that canopy is removed. The way water reaches and moves across the landscape can therefore change.

This makes the management of water during and after harvesting particularly important. Forestry roads, culverts, cut-offs and drainage systems need to be designed and maintained so that water can move safely through the site without creating new pathways for erosion or transporting sediment into waterways.

The design of this infrastructure is influenced by a range of environmental and physical factors. These include the size of the catchment draining towards a particular location, the steepness of the terrain, the characteristics of the underlying ground material, expected rainfall and the volume of water a culvert or drainage structure may need to carry.

Hannah does not design the roads or drainage infrastructure herself. Her role is to work alongside the people who do. She helps interpret environmental requirements, considers potential environmental risks and checks that agreed standards and conditions are being followed.

This collaborative approach is an important part of modern environmental management. Engineers, forestry supervisors, environmental planners and other specialists bring different areas of expertise to the same problem. Good outcomes depend on those disciplines working together rather than operating in isolation. As Hannah explains: "We're kind of working together and acting as a sounding board for each other."





WHAT IS LIVING IN THE NGAHERE?

DISCOVER FORESTRY NEW ZEALAND

"What is here that we can't easily see?"

Environmental planning isn't only about soil, water and regulations.
It is also about discovering what is actually living in and around a forest.
Hannah says one thing that may surprise people is the biodiversity that can be found within plantation forest environments.

Native fish such as kōaro, redfin bullies and torrentfish can occur in waterways. Forest environments can also provide habitat for birds, bats and other native species.
Some species are easy to see.
Others are not.



Kōaro

They are excellent climbers. They require clear swiftly flowing forest streams to live.Trout in lakes are pushing Kōaro to extinction.



Kokopuru/Redfin Bully

Tend to live near the coast. They are very good climbers. They can even climb waterfalls! They live in bouldery streams. They are sensitive to siltation.



Panoko/Torrentfish

Prefer shallow, fast-flowing rapids or riffles in freshwater rivers over much of New Zealand. After spawning near river mouths, larvae are swept out to sea before returning to rivers as juveniles.

What is living in the ngahere?

Potential Pekapeka-Tou-Roa/ Long Tailed Bat roost trees are another example. Features such as large diameter, cavities or split crowns can indicate that a tree may provide suitable habitat for bats.

Before forestry operations begin, environmental planners need to understand what species are present in the wider landscape and whether they could be affected by the proposed activity.

They ask themselves 'What is here that we can't easily see?'



Pekapeka-Tou-Roa the Longtailed Bat

Aotearoa's only native mammal. They are at risk and active pest control management is the only way to ensure their survival. Roost trees are not cut down.



Kārearea/ Falcon

Kārearea are a threatened species. Kārearea feed on live prey. They live in plantation forests and lay their eggs on the ground in a scrape



Pepeketua/ Hochstetter's frog

Pepeketua or the Hochstetter's Frog lives near streams and damp forest floors



Kōkako

Tairāwhiti's forested hill country is home to a range of native species, including North Island brown kiwi, North Island robin, kārearea, kākā, weka, yellow-crowned parakeet and, very rarely, kōkako.

FINDING LIFE THROUGH e-DNA

Sometimes scientists don't need to catch an animal to find out whether it is there.

Hannah uses the example of environmental DNA, or eDNA.
Every organism leaves tiny traces of DNA in its environment. In freshwater, water samples can be filtered to capture these traces. The samples are then analysed in a laboratory to identify species that have left DNA behind.
This can be particularly useful for detecting small native fish that may be difficult to find using traditional surveys.

The result isn't simply interesting scientific information.
It can change what happens in the forest.

If monitoring identifies a sensitive species in a stream, the forestry operation may need to change.

Additional buffers or controls could be introduced, or activities could be avoided during an important period in the species' life cycle.

PLANNING FOR A CHANGING CLIMATE

Environmental planning is also about looking beyond today's harvest.

Hannah is interested in how forests can become more resilient to extreme weather and how harvesting can be managed across whole catchments.

One approach being considered is the use of catchment constraints, limiting how much of a catchment is harvested at any one time.
The idea is to avoid making major changes across an entire catchment simultaneously.

But once again, there isn't a simple answer.
Imagine a catchment containing thousands of hectares of trees planted at roughly the same time.
If harvesting is restricted too much, those trees may become older than planned before they can be harvested.

If too much is harvested at once, the catchment may experience greater changes in water movement and increased environmental risk.

HOW MUCH IS ENOUGH?

The answer depends on the terrain, forest age, the catchment, infrastructure and the risks involved.
Hannah sees this as part of a bigger transition in New Zealand forestry.
Some forests were planted decades ago in response to erosion and Cyclone Bola.

At the time, the priority was getting trees established quickly to provide ground cover. Now the industry has to think about what happens when those forests reach harvesting age, particularly on highly vulnerable land.
There are places where traditional clear-felling is not the best option.

Learning from the past
Planning for the future

Some of the challenges facing forestry today are the result of decisions made many decades ago.
That means they cannot be fixed in five years.
Hannah describes the transition as potentially a 100-year challenge.
The challenge is to manage the legacy of existing forests while creating a more resilient future.
That could mean:

- spreading forest age classes across a catchment;
- avoiding harvesting an entire catchment at once;
- improving infrastructure;
- protecting waterways;
- understanding biodiversity;
- managing vulnerable land differently;
- transitioning land to an established indigenous forest;
- and adapting forestry practices as new information becomes available.

The forest of the future may therefore look quite different from the forests established decades ago.
And environmental planners will be part of deciding what that future looks like.

Environmental planning is not about finding a way to eliminate every environmental effect.
Forestry takes place in a living, changing landscape. Every decision has consequences.
The challenge is to understand those consequences, manage the risks and find the best balance between competing priorities.
So the next time you look at a forestry road, a harvested hillside or a stream running through a forest, ask yourself

'What decisions had to be made to get to this point?'

And more importantly:
If you were the environmental planner, what would you decide?

Because responsible forestry isn't simply about following the rules.

It's about using science, evidence and practical problem-solving to make better decisions for the forest, the people who work in it and the environment around it.

Curriculum Links

Geography	How people interact with the natural environment. Sustainability, spatial tools, data and perspectives
Science	Earth systems, living systems, e-DNA, biodiversity
Technology	Design and problem solving
Mathematics	Exploring an environment using data, processing information and using evidence to make conclusions.
English	Reading and interpreting information, communicating evidence and presenting.

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WIDE TRUST

The Wood Industry Development and Education (WIDE) Trust is a charitable trust established in 2018 with the mission to support development and education in the forestry and wood industry sectors through the provision of grants and scholarships to New Zealand students and institutions.

FOREST GROWERS LEVY TRUST (FGLT)

The Forest Growers' Levy Trust collects the commodity levy paid on harvested wood material from forest growers and acts as the custodian of those funds. The Trust ensures the levy is invested in research, development, biosecurity, promotion and other industry-good activities that benefit New Zealand's plantation forest sector.