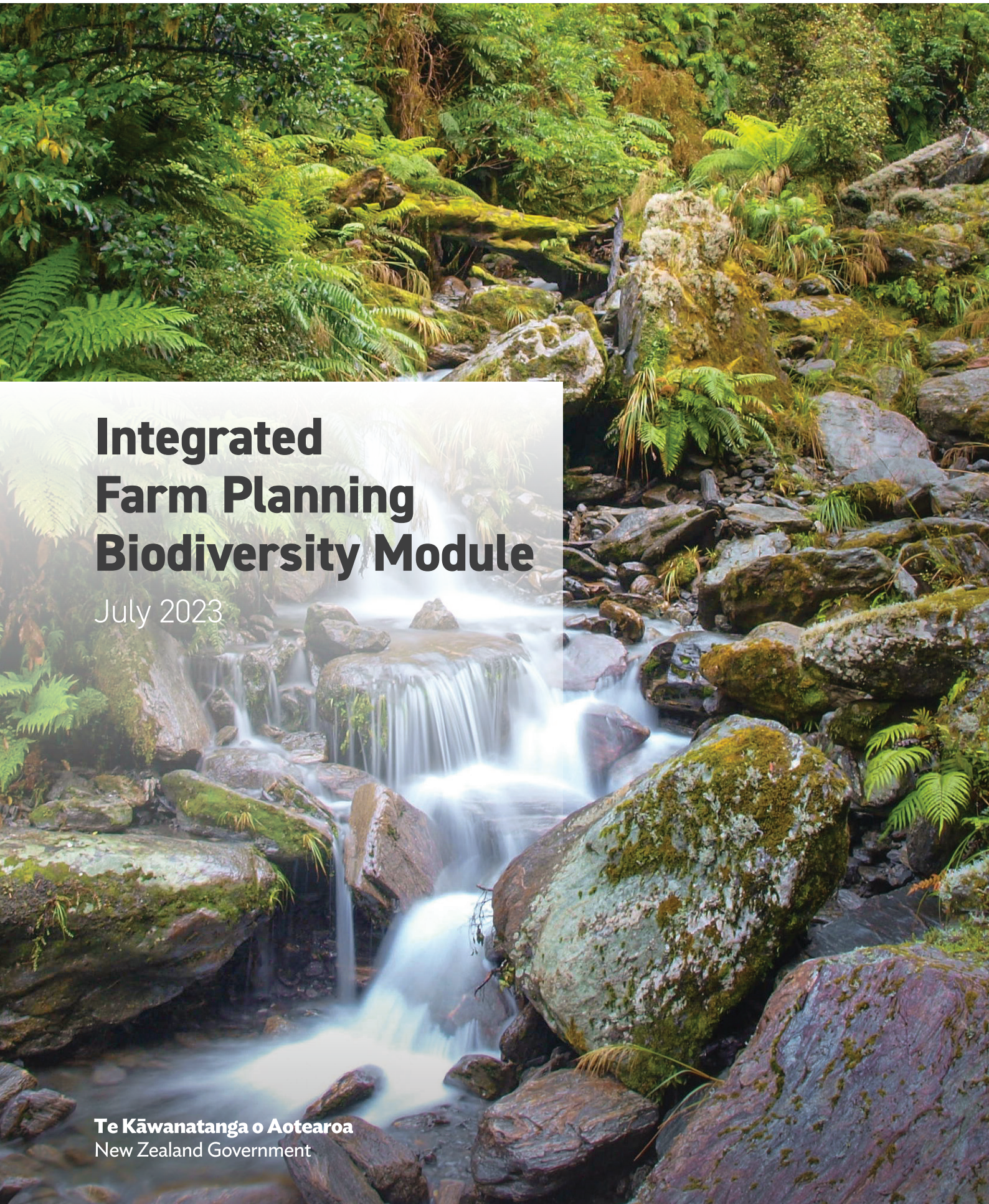
Ministry for Primary Industries
Manatū Ahu Matua



Integrated Farm Planning Biodiversity Module

July 2023

Te Kāwanatanga o Aotearoa
New Zealand Government

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Purpose

Integrated farm planning

The food and fibre sector has an important role in protecting the health and wellbeing of our biodiversity. There has been a decline in indigenous biodiversity throughout Aotearoa New Zealand over the last 150 years. In the last 10-20 years, actions taken on both public and private land have been important in beginning to reverse that trend. One area that needs special attention is that of indigenous biodiversity in the lowlands – our unique freshwater wetlands. Ninety per cent have been destroyed, so addressing that wetland loss is becoming increasingly important.

For Māori, Te Ao Māori, their natural worldview considers everything living and non-living to have an interconnected relationship of respect.

Our biodiversity brings together different genetic, species and ecosystem diversity, some of which will be indigenous and some non-indigenous. This biodiversity is New Zealand's biological wealth.

Therefore, as landowners opportunities exist for areas of biodiversity to be established, maintained, enhanced, and protected. It may not be necessary to reduce productive farmland for biodiversity development as non-farmed areas and areas beyond the farm boundaries can be developed to provide habitats for insect and bird species that are beneficial.

A healthy and diverse biodiversity (indigenous and exotic) system on-farm or on your whenua, will help with other parts of the ecosystem such as:

- Increases protection for many of our rare indigenous species and habitats and provides wildlife corridors and/or forms part of networks of habitat for mobile species such as birds, bats, and some invertebrate throughout the productive landscape.
- Increases pollination for crops, trees, and pasture through beneficials such as honeybees, lady birds, bumblebees, and hover flies.
- Improves soil health with more earthworms and microbes, which in turn improves nutrient cycling.
- More shelterbelts provide protection to soil, stock, and crops during our increasingly variable weather patterns.
- Decomposition of waste.
- Adds to your on-farm and local aesthetic and amenity values such as cleaner water and air.
- Helps with pest control e.g., hosting insect pest predators.
- Prevents soil erosion and provides some flood protection.
- Improves water quality.
- Increases resilience against natural disasters, which in turn safeguards food security.
- Provision of recreational and spiritual benefits by leaving a legacy for future generations to benefit from.
- Builds important links with our local communities, consumers, and overseas markets.

Many farmers, growers and Māori landowners have plans and actions already in place, while others still need to get started, although it is never too late.

The integrated farm planning approach is about bringing together all farm planning requirements – such as biodiversity – making it easier to do business and achieve your goals. Taking this whole-of-farm approach will streamline compliance, reduce duplication, and provide a structured approach to better identify risks and opportunities that help lift performance, both in your business and as stewards of the land.

This biodiversity module is not a regulatory tool and encompasses all biodiversity.

This module provides some ideas to continue or start that journey and should be considered as complimentary to the National Policy Statement for Indigenous Biodiversity (NPS-IB) and the Department of Conservation's new strategic pathway , Te Mana o te Taiao implementation plan: Biodiversity (doc.govt.nz), to address the decline in our biodiversity. They will be providing more technical guidance than what can be included in this module.

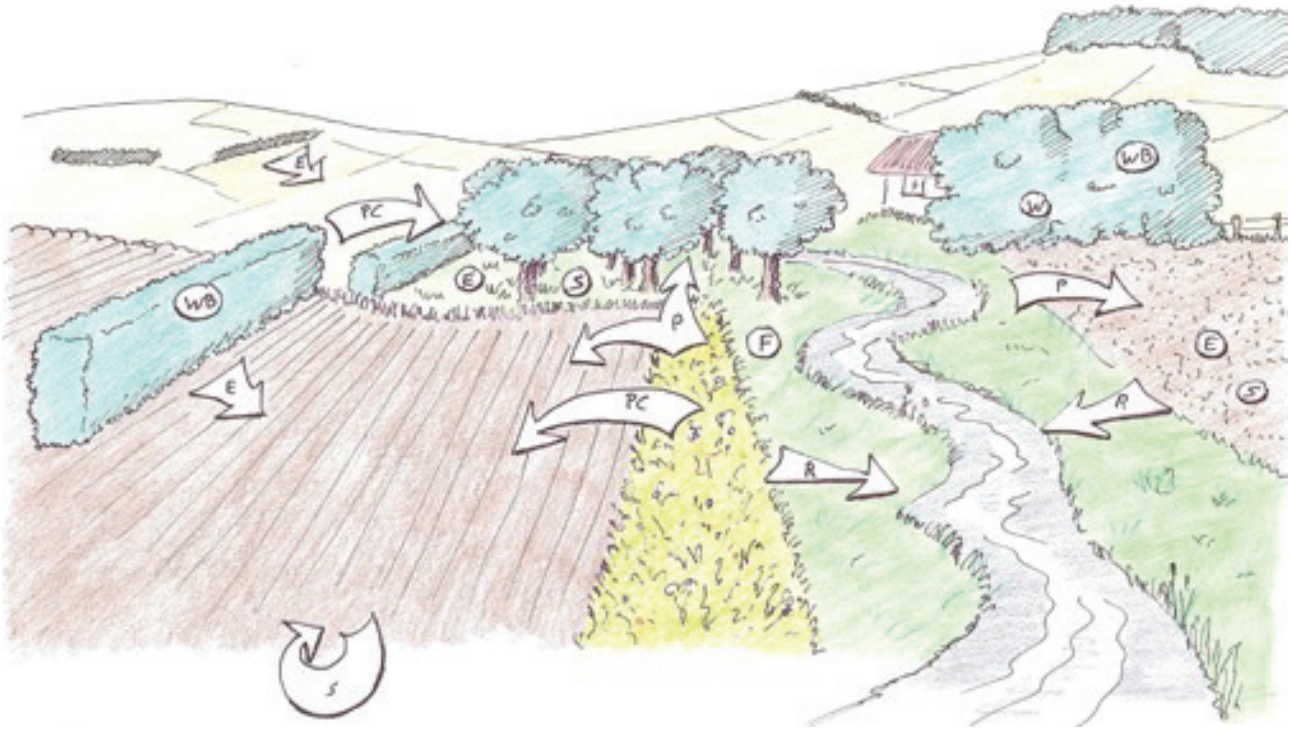
Remember, there is advice and/or support available through your regional councils, industry bodies, processors, irrigation schemes, Ngā Whenua Rāhui, the Queen Elizabeth II Trust, Te Uru Rākau, the Department of Conservation and other environmental non-government organisations.

1 Māori and Biodiversity • Environment Guide

2 FAR Focus: Biodiversity: Issue 13, July 2018. 75f83a3f-b183-54b8-a9d2-714bfb4160bd.pdf (far.org.nz)

Biodiversity functions

Our biodiversity is often undervalued in our farm systems, but it performs many important functions and is nature's way of providing essential services to all landowners and rural communities. It is a great place to take visitors and share the amenity and aesthetic values.



The multiple services provided to agriculture by biodiversity.
https://s3-eu-west-1.amazonaws.com/leaf-website/LEAF-Sustainable-Biodiversity-36pp-A5.pdf

- **E** = Erosion prevention especially during adverse weather events.
- **F** = Flood mitigation protection - providing diversity for adaptation and resilience to changing weather patterns.
- **P** = Pollination of crops, trees, and plants by bees.
- **R** = Run-off reduction by improving our water cycles - such as drought proofing your farm by using important points of support in your farm water cycle such as wetlands, planted gully swales, ponds and dams.
- **PC** = Pest control through habitat for beneficials such as lady birds and flies.
- **S** = Soil conditioning can improve soil structure, nutrient recycling in functioning soil ecosystems such as increasing earthworms and microbes.
- **W** = Water quality improvement through riparian buffer zones.
- **WB** = Windbreak for shade and shelter for animals and crops and fire resistance.

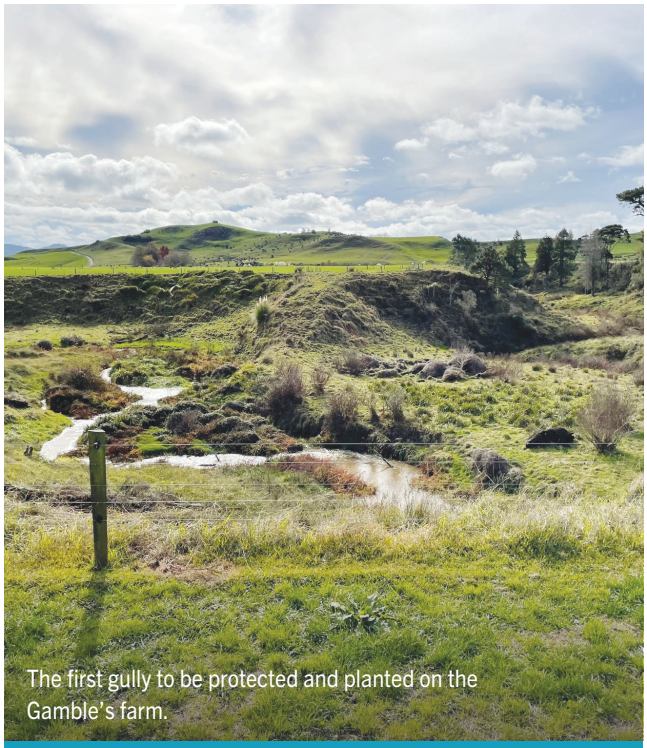
For Māori landowners biodiversity is about whakapapa (relationships) through their connections to the land and ancestors, and their responsibilities as kaitiaki. It is also about being able to undertake cultural practices with benefits to mental/spiritual/cultural wellbeing, providing habitat for taonga species, and as an indicator of broader environmental health.

The relationship between the health of the ecosystem and the wellbeing of the people can be demonstrated by the following phrase: *Ko ahau te taiao, ko te taiao, ko ahau – The ecosystem defines my quality of life* (Ngāti Wai and Ngāti Whātua).

There are multiple environmental advantages provided by biodiversity to a farming system.

CASE STUDY: Dave and Leeann Gamble, dairy farmers at Whatawhata

Dave and Leeann Gamble bought their dairy farm eight years ago. It has 10 kilometres of continuous riparian margins along the Tunaeke Stream which eventually flows into the Waipā River.



The first gully to be protected and planted on the Gamble's farm.



Gully planted but no first-year plant release spraying to protect young plants from wind, drought, and pests.

There had been an initial start to fencing off and planting the gullies, but Dave and Leeann, with the help of the Waikato River Authority and Waikato Regional Council have made a major push to get it completed. The plan is a further 7.3-hectares. After the fencing was finished, the next challenge has been pest management. Gorse was a major issue on this site and needed to be controlled before the planting could take place. Note: In other sites gorse could be a very good nurse species if the end goal is a native forest and there are good native seed sources for indigenous woody species nearby.

The interesting part of this programme is that no spot spraying was undertaken during the first and subsequent years. The survival rate is well over the 90 per cent and seems to work well with their variable climatic conditions, such as drought. Note: This practice may not be suitable for other regions in New Zealand.

Within the gully system there are naturally occurring indigenous carex which are now spreading well without the competition from gorse. Old pine trees have been left standing to provide bank protection. Any wilding pine seedlings are removed but have not been an issue so far.

Dave commented, that with stock exclusion and pest management under control the planting plan is much easier to undertake. A key to part of the project has been getting good advice in putting together a restoration plan specific to the circumstances and conditions of the site.

CASE STUDY: Dave and Leeann Gamble, dairy farmers at Whatawhata *continued*



Gully cleared of pests and ready for planting. Longer term replacement of the old pines will be achieved by underplanting, because the pines may get tipped over in storm events.

Dave and Leeann's story highlights the biodiversity benefits that can be achieved from planting programmes, along with the some of the challenges that must be overcome and planned into the programme of works to ensure success. The long-term value will be the improved filtering of runoff from the dairy farm, more habitat for native riparian plants which have declined along our waterways in recent years.

Expectations

Our whānau and communities are encouraging us as farmers, growers, and Māori landowners to embark on a continuous improvement journey through integrated farm planning and the *Good Farm Planning Principles*, to prevent any further decline and hasten restoration in the biodiversity of New Zealand.

How to be successful?



Step 1: Know and assess

Background information

Getting started – how to do it:

1. Write down your specific values and objectives for biodiversity on your farm or whenua. Sometimes talking this through with an ecological advisor may help shape your objectives. For example, *"to enhance and protect our biodiversity values on our farm, I will look to restore taonga species by planting erosion prone hillsides and fence off bush fragments."*
2. Protect the biodiversity values on your farm.
3. Map and record what you have, such as identify and assess the habitats and the species of value. Again, you may need help with this from an ecologist. If you have visitors on farm what would you show them?
    - On the map, show where you have existing 'special places' such as wetlands, significant natural areas, landscape features such as a limestone escarpment, wāhi tapu, gullies, swales, very wet areas, spring heads, water crossings, stock camps, vehicle access routes, different types of soils, wind breaks, waterways and their margins, shade and shelter for livestock, natural flow paths, dams, ponds, most productive paddocks versus least, habitat corridors, flood prone areas, ephemeral wet areas.
    - Record taonga species, birds, insects, and pests, you see. Farm staff, whānau and kaumātua can help with this.
    - Use photo-point monitoring, where successive photos are taken from the same place, to record changes over time.
    - What knowledge systems/mātauranga has been passed through to you from previous generations, prior landowners, neighbours about your land?
    - What would success look like and the consequences of doing nothing; a little bit; or a total commitment to improve, enhance and protect the farm's biodiversity. What are your risks?
    - Pest management – weeds, predators.
    - Corridor loss between bush fragments.
    - Lack of awareness by the farm team of how management is affecting the farm's biodiversity. For instance, grazing through and under bush fragments, unfenced wetland, and critical source areas.
    - Adverse weather events such as droughts, floods, risk of erosion and land slips from large rainfall events.
4. How to be proactive – have a walk with:
    - Local experts with specialist knowledge.
    - Involve farm staff.
    - Local hapū/whānau.
    - Neighbours.
    - Local school.
    - Other local farmers to increase biodiversity corridors for the catchment.
    - Engage with your regional council land management officer.

5. Now that you have identified what biodiversity you have, identify the risks and opportunities that exist and then plan how to manage your biodiversity as a part of your whole-farm management system. Give attention to details such as changes to soil, water, and air through:
    - cropping and crop rotation
    - considering minimum or zero tillage
    - use of catch crops to minimise bare soil
    - avoiding soil compaction by careful machinery and stock management
    - use of multi-species seed
    - changing chemical/fertiliser application
    - ensuring machinery is maintained and calibrated to ensure even/accurate application
    - identifying run-off flow paths and make use of temporary fencing
    - installation of sediment traps
    - upgrading bridges, culverts enabling fish passage
    - keeping up on a regular plant and pest management programme
    - risks and opportunities could be lack of fencing, drought, flooding, resources such as finance and people
    - good planning e.g., planting the incorrect or inappropriate species for the location and/or the environmental conditions.
6. Plan future enhancement opportunities, such as:
    - riparian protection
    - land stabilisation
    - new edible forage crops/plantations
    - shelterbelts
    - shade and shelter in each paddock
    - laneways
    - potential retirement areas that can be planted such as roads, laneways, odd corners in a paddock
    - stock exclusion.
7. Consider how to work with others by a formal protection through QEII or council covenant, engage with your regional council, catchment group, industry discussion group.

Please note that on industry websites there are examples of a risk assessment matrix.

For example: our-plan-templates-all-templates.pdf (beeflambnz.com)

Likelihood	Consequence		
	Slight	Serious	Major
Low	Low	Low	Medium
Medium	Low	Medium	High
High	Medium	High	High

Farm and Environment – Deer NZ

Land management – DairyNZ

Benefits of Biodiversity to Farmers

CASE STUDY: Ian Marr

A block planting of natives on Ian Marr's Mid Canterbury farm is encouraging beneficial insects and pollinators which are useful in his cropping operation.



Ian Marr.



CombiGuard protectors were used to protect plants from wind, spray, and pests.

The block was planted in September 2013, after Ian, who farms near Methven, attended a field day on integrated pest management, which encouraged him to establish biodiversity planting on his farm.

"It's visually appealing. We have a lot of trees, but they are exotic shelterbelts (pine, macrocarpa and eucalyptus) as wind is an issue here," Ian said.

Funding was available from the Ministry for Primary Industries' Sustainable Farming Fund, with the planting done by Brailsfords and project support from Plant & Food Research and the Foundation for Arable Research. The area was completely sprayed, with 1500 natives planted in two metre spacings on 0.30 hectares. CombiGuard protectors were used to protect plants from wind, spray, and pests. Despite several significant snow events in the first few years, plant survival was good, with more plants lost to wind than frost.

Ian said that people shouldn't underestimate the spraying required. He sprayed three times a year for the first two to three years.

The planting has 25 to 30 different species, including two canopy trees, tōtara, and mataī. Sub-canopy plants include kōwhai, cabbage trees, lemonwood, ribbonwood, mānuka and kānuka, and shrubs flax, hebe, native broom and several coprosmas.

No plants that are known to harbour pest insects of arable crops were used.

Ian said since the natives were planted, he has noticed more activity by parasitoid wasps on aphids. Bumble bees, useful for pollinating his red clover crops, may have also increased in numbers, as the natives provide winter shelter and kōwhai is an early nectar source. Bellbird numbers have also dramatically increased.

As part of his integrated pest management programme, he has reduced the use of insecticides on crops, relying on beneficial insects to do some of the control work for him.

The block has been used by researchers to monitor insect life using sticky traps, window traps and pitfall traps, using a bare fence line as a control.

Ian said it is hard to quantify the benefits of the native planting in terms of an arable farming operation, but he values the biodiversity and will be planting future shelterbelts in natives.

"If you have a difficult corner, or an area that is not productive, why not plant it in natives," Ian said.

CASE STUDY: Ian Marr *continued*



An aerial view of Ian Marr's block planting of natives.



Step 2: Develop an action plan

1. Make sure you select actions that work for your resources such as budget, land, local area, local environmental conditions which consider climate change, and catchment rather than just following a 'recipe'. For example, you may want to eco-source seed for your planting regime. This will take time and needs to be considered within your planning.
2. There are many components to biodiversity, for instance:
    - The need to maintain high value biodiversity habitats and areas. The ideal would be that you have a farm plan on how you will do this over next few years.
    - Enhance/improve lower quality areas.
    - Look at the high ground of your farm catchment where there may be remnant bush, headwaters of small tributaries, and stock camping sites, water, and sediment loss. There may be some special or unique features such as a wetland, geothermal feature, and possible bat, bird, or lizard habitat. For example, in the lowlands there may be special springs.
    - Next, look at your water courses on the farm and their flow paths, both permanent and intermittent.
    - Think about any regenerating scrub and its importance for possible stock shade and shelter. Start with what you can maintain, enhance, protect.
3. Increase your diversity of trees/plants to cover drought and/or extreme wet weather events. For example, you may look at using critical mass of species that have a range of environmental tolerances.
4. Diversity of trees/plants will increase root structure dynamics and help reduce runoff, water loss from soil through evaporation and transpiration, increase water infiltration and water storage in the soil.
5. Do not overlook farm roads, races/laneways, and tracks for opportunities to increase your biodiversity for helpful bees and insects for pollination of crops.
6. Look for opportunities to add layers. For example, companion planting and/or agroforestry which provide opportunities to connect biodiversity through corridors of vegetation.
7. Depending on your objective you can make use of planting plans and templates to support you with the planning (NZLT resource)
8. Think about how you can improve fish habitat in your stream (NZLT Hooked on Native Fish).

CASE STUDY: A case study to help you reflect on some early and easy 'wins'



Jenni and Gordon Vernon's dry stock farm in the Waikato.

Jenni and Gordon Vernon own a dry stock farm near Waingaro in the Waikato.

When they purchased the farm 14 years ago, there was a blank canvas of 19 large paddocks and one water trough. They were aware of "Miller's Bush" which was fenced, but no information about its significance was given.

The landscape has limestone outcrops, several pieces of native bush (not fenced at the time), gully swales, small tomos, an old small opencast coal mine face, two freshwater streams and natural springs that pop up out of the limestone escarpments.

The couple decided to target the 'low hanging fruit' first and put in a water system which provided troughs to all but one paddock, subdivided big paddocks and began fencing off gully swales and pockets of bush.

Part of the plan was planting trees for bees and tūī on the driveway and fencing off and riparian planting the main freshwater stream.

"Unfortunately, that turned into a disaster with the first major flood," Jenni said.

Lessons were learned and the flood prompted a rethink of how they would fence off the Te Akatea Stream. At the same time, Jenni and Gordon joined a possum control scheme initiated by the regional council.

"All of this has been a steady as you go programme, but now our children are home and they have embarked on a more comprehensive programme," Jenni said.

The programme includes:

- Establishing two QEII covenants.
- Working with the regional council to fence off a steep hillside and doing more poplar pole planting for erosion control.
- A different style of riparian fencing in the flood zone.
- Completing the planting in the final gully swale.
- Fencing further kahikatea remnants.
- Pest management of woolly nightshade, blackberry, and gorse from the neighbouring forestry block.
- Newly fenced bush block at the back of their farm and trees planted along the driveway for bees and tūī.

There are now well-established plantings in the gully swales and wetlands where frogs are reappearing.

"Tūī enjoy all the flax heads during flowering and wood pigeons and kingfisher are back. Kōura are in the kahikatea swamp and bush seedlings are growing in the fenced off areas," Jenni said.

"There is still plenty to do, but it is nice to see how fast areas are recovering from the work completed so far."



These photos show the before and after of gully swale planting.



Step 3: Act

From your plan, what actions will you be doing and when?

1. **List your specific tasks:**

Planting programme

- Set out a realistic budget and timeframe.
- Fencing, temporary or permanent, areas such as, gullies, swales, very wet areas, spring heads, water crossings, stock camps, vehicle access routes.
- Adding some special 'bee' and beneficial insect trees, flaxes.
- More riparian planting.
- Repairing, replacing, or adding new fences but just beware that by excluding stock, which encourages regeneration, you may have to do more weed management.
- Continuing with weed and pest management.
- Preparing a new site for planting, plus consider additional in-fill planting on established areas using locally sourced plants. For example, planting shade tolerant trees under an established canopy.
- Releasing new plants by spraying or hand cutting grass that may be encroaching on your young trees, to encourage better survival rates.
- Recording plant species, birds, fish, for instance, every six months think about what you have noticed regenerating. Take photos in the moment and reflect once a year on any changes.
- Improving native fish passage by suitable access through farm culverts.
- Add a timeframe with a proposed completion date. This timeframe can be broken up into short and long trem goals, for instance, you may have a 10-year soil conservation plan, a three-year fencing and planting plan.
- Identify where on your farm the action/s are going to happen.

Networking

- Attending workshops off-farm.
- Hosting a workshop on-farm.
- Joining a catchment group or continued particpation in a catchment group, which allows for collective action, community support and more efficiency in getting the work done.

Funding

- Look for some funding assistance.
- Working on covenants.
- Connecting and involving whānau, kaumātua, and rangatahi with the whenua through your biodiversity work.
- List who is involved and what resources you need.

CASE STUDY: Another inspiring story


John and River Missen at Port Waikato.

Eight years ago, John and Amber Missen, together with their three children, bought a 76-hectare lifestyle block on Klondyke Road, not far from the village of Port Waikato.

The block had previously been part of a bigger farm. The land is very steep, with poor soil quality and challenging pest management issues. Their neighbours are forestry, sheep, beef, and goat farming plus a Department of Conservation reserve.

It was clear from the outset that this property was not going to be an economic pastoral unit, so the family embarked upon an ambitious conversion of the land to indigenous forest.

The seeds are eco-sourced because they are already pre-adapted to local conditions. They are then commercially germinated by Ngā Rākau Nurseries in Auckland, and then planted by a team of professional planters.

The challenge John faces is pest management. "The key culprits are goats, red deer, possums, ferrets, stoats, and rats," John said.

Fortunately, John is a keen hunter, but keeping on top of the pests is a constant process. Ultimately the family hope to develop some luxury accommodation pods for people to be able to enjoy the beautiful bush and coastal vistas.

The project is a labour of love by the family, but the benefits for the tributary that flows into the Waikato River are already evident.

"There is abundant kōura to be found, the banded kōkopu are thriving and the abundance of bird life is increasing," John said.

A project of this scale would not succeed without outside support, and the funding from the Waikato River Authority and Waikato Regional Council has been crucial.

John's tip for anyone starting out on such a project is "don't be afraid to talk to your council. There is help out there".


Seedlings at Ngā Rākau Nursery.


Family members potting up seedlings.


Plants ready to go.


The planting crew hard at work.


Plants waiting to be planted


Seedlings ready to be planted.



Step 4: Monitor

Write down and map what you have completed:

- Record any delays - what happened and why.

Monitoring points	✓
Existing biodiversity vegetation summary	
New plantings and names of plants	
List of fish, plants, and bird species observed	
Any adverse event effects such as tree/plant loss or damage. For example, what is the survival % of the plantings and any obvious reasons for the loss of plantings such as browsing damage, flooding, drought?	
For browsing damage are their signs of what caused it and could that damage be minimised?	
Soil erosion and/or disturbance	
Before and after photos	
Record of completed pest management	
Record of the length and type of new fences or repairs to existing infrastructure such as bridges and culverts	
New fish passages	
Record of the costs for anything completed and/or started	
Record any delays and what happened and why	
Have you noticed any changes in water clarity, bird types and numbers?	
Other	

Step 5 and 6: Reflect, review and adapt

This is the chance to take stock of your actions and help to identify what next year will look like and if there are sufficient resources and time to complete what is in the original planned timeframe. It is helpful feedback to your staff and family members if they have been involved during the year.

Some helpful feedback could be:

- What worked and what did not and why?
- Were there some surprises that you discovered such as the farm management was not affected by the new fencing around a bush remnant. The stock did not get through the repaired six wire, two electric fences. The planting did not take as long as expected because the local school children were keen to help.
- Are there any new risks to assess or actions that can now be ticked as completed?
- Are there new sites to be included in the plan?
- What will the budget be for next year?
- Is there an opportunity to engage further off-farm with a catchment group or potential funders?

If you like to write things down then here is a review mapping exercise:

Actions	Completed location, date	Budget	Work still in progress and/or new priorities	Comments
Next year will there be any new management changes required?				
Are your priorities still the same?				
Have you asked for some off-farm advice and do you need more?				
Reflect on your risk assessment. What has changed? For example, new staff, regulation, and financial commitments.				
Is there more shade and shelter for mahinga kai to breed?				
Other				

YouTube stories from Waitaki:

https://www.facebook.com/waitakiirrigators/videos/1213201152051797

https://www.facebook.com/waitakiirrigators/videos/993514874020427

https://www.facebook.com/waitakiirrigators/videos/993532294018685

https://www.waitakiirrigators.co.nz/wp-content/uploads/2015/02/Trees-guidelines-in-Publisher.pdf

Finally, based on your evaluation, what will you change next year to continue your journey of maintaining, enhancing, and protecting your biodiversity assets? In the end, what you are doing on your farm is "growing capacity in your community", according to Bill Garland, who has a long history of integrating biodiversity into his farm planning and daily management systems.

Frequently asked questions

1. What is on-farm biodiversity?

Our biodiversity in Aotearoa brings together different genetic, species and ecosystem diversity, some of which will be indigenous and some non-indigenous. This biodiversity is New Zealand's biological wealth.[3]

2. Why is biodiversity important on my land?

Biodiversity is important because:

- It increases New Zealand's overall biodiversity as many of our rare species and habitats are on private land.
- It increases pollination for your crops, trees, and pasture.
- It improves soil health with more earthworms and microbes which in turn improves a farm's nutrient cycling.
- More shelterbelts provide protection to soil, stock, and crops during our increasingly variable weather patterns.
- It adds to your on-farm and local amenity values such as cleaner water and air.
- It improves cultural wellbeing.
- You are leaving a legacy for future generations to benefit from.
- Benefits of biodiversity for farmers.

3. Where do I start?

- Start with what you have, by first taking a farm tour and mapping what you see. Think about inviting an ecologist or QE2 representative as some biodiversity values are not obvious (e.g., jewelled geckos in kānuka or grey shrubs, many rare plants are low growing and not very showy). Many landowners discover high value biodiversity they did not realise was special.
- With your map identify some risks and opportunities for your biodiversity.
- Now that the risks are identified, work out what actions can be taken to maintain, enhance or protect your biodiversity.
- Look for the actions you can start straight away.

4. How do I set up a covenant (or kawenata under Ngā Whenua Rāhui)?

QEII advice is:

- Understand what you want to protect – ask your local QEII rep to visit your property and help you.
- Develop a plan – preferably one that fits with your farm planning and financial capacity.
- Decide on your management approach – usually this is a mix of one-off interventions such as retirement fencing, on-going management such as weed and pest control and revegetation to fill in gaps.
- Consider using a covenant – to protect your investment in land stewardship and leave a legacy for the next generations.
- For further information, visit their website: https://qeiinationaltrust.org.nz/

5. How do I start a catchment group?

NZ Landcare Trust and Beef + LambNZ suggest:

- Get together with some of your neighbours and other locals who may be interested in the idea, including local Māori.
- Hold a facilitated public meeting to develop an initial plan.
- Complete a catchment and community stocktake of what you know about your catchment.
- Identify your vision, values, and goals.
- What actions does the group want to do?
- How are you going to record your successes and failures?
- What governance do you need?
- For further information visit:
  Catchment groups: all resources | Beef + Lamb New Zealand (beeflambnz.com);
  Catchment Groups | - NZ Landcare Trust;
  https://www.landcare.org.nz/completed-project-item/catchment-groups;
  Extension services for farmers | Funding and rural support | NZ Government (mpi.govt.nz);
  www.canopy.govt.nz Catchment Group Map

3 FAR Focus: Biodiversity: Issue 13, July 2018. 75f83a3f-b183-54b8-a9d2-714bfb4160bd.pdf (far.org.nz)

6. How do I know what species already exist on my land?

- Invite an ecologist, botanist, or QE2 rep to come visit. Many will happily come visit for free and love exploring their local areas and sharing their knowledge.
- Helpful websites to visit: www.forestandbird.org.nz/resources/how-identify-new-zealand-birds to help with bird identification. Further detail is then found on Home page | New Zealand Birds Online (nzbirdsonline.org.nz)
- You can ask for help by uploading your sighting to iNaturalist New Zealand.
- Flora Finder is an electronic field guide https://www.otago.ac.nz/botany/outreach/florafinder/ to help you identify some of the most common New Zealand native plants from photographs of their leaves. Simply take a photograph of a native plant's leaf with your smart phone, and Flora Finder will:
- Assist in identifying the plant for you
- Provide you with a description of the plant
- Provide you with images of parts of the plant
- Pinpoint and map the location of where you've found your plant using the mapping feature
- Add your photo to your own digital collection when you confirm your match.

7. How do I do a biodiversity risk assessment?

Matatahi Biodiversity on Farm Assessment tool
NZ Biodiversity Assessment Tool Prototype (shinyapps.io)

This tool makes it easy to assess, and report on, how biodiversity-friendly your farm management actions are. The tool is designed for a farm-level assessment. You can use the tool to:

- assess the effectiveness of your current farm actions
- explore the likely impact of changing those actions.

Biodiversity Assessments on Farm • Living Water

Guidance on biodiversity offsetting in New Zealand: Policies and plans (doc.govt.nz)

Slide 1 (eco.org.nz) – Good Practice Biodiversity Offsetting in New Zealand

Outcome-Based Biodiversity… | LEAF (Linking Environment and Farming) UK

References

Councils

Biodiversity: Christchurch City Council (ccc.govt.nz)

Biodiversity | Bay of Plenty Regional Council | Toi Moana (boprc.govt.nz)

Our biodiversity work | Environment Canterbury (ecan.govt.nz)

Biosecurity & biodiversity - Environment Southland (es.govt.nz)

Increasing Hamilton's Biodiversity — Community Waikato | Capability and capacity building with community organisations

Biodiversity Strategy | Hawke's Bay Regional Council (hbrc.govt.nz)

Biodiversity - Horizons Regional Council

Nelson City 42155 Nelson 52pp

For North Marlborough A North_Marlborough_Introduction_and_Planting_Restoration_Part 1.pdf

B North_Marlborough_Planting_and_Restoration_Guide_Part_2.pdf

Biodiversity - Northland Regional Council (nrc.govt.nz)

orc_biodiversitystrategy_document-final-web.pdf

Tasman District Native plant restoration lists | Tasman District Council

Biodiversity plans / Taranaki Regional Council (trc.govt.nz)

Biodiversity | Waikato Regional Council

Greater Wellington Regional Council — Protecting and restoring wetlands

Environment - The West Coast Regional Council (wcrc.govt.nz)

Pest Plants - The West Coast Regional Council (wcrc.govt.nz)

Industry

https://beeflambnz.com/knowledge-hub/PDF/trees-farm.pdf

Blueberries (blueberriesnz.co.nz)

Dairy committed to a better environment – DairyNZ

Dairy Tomorrow - The future of New Zealand dairying

Wetland Practitioner Guide – NIWA and DairyNZ, May 2022. wetland practitioner Guide-Final 19.5.22.pdf (niwa.co.nz)

Deer farming video https://www.youtube.com/watch?v=AsbtREr0OV8

Environmental code of practice – Deer NZ

Environmental stewardship – Deer NZ

https://www.far.org.nz/assets/files/blog/files//75f83a3f-b183-54b8-a9d2-714bfb4160bd.pdf

Farm Environment Plan templates

Farm Excellence | NZ Dairy Company | Westland Milk Products

Farming System and Code of Practice - Dairy Goat Co-operative (dgc.co.nz)

https://www.hillcountryfutures.co.nz

Improving biodiversity | Beef + Lamb New Zealand (beeflambnz.com)

New Zealand Farm Assurance Programme | NZFAP | NZ Farm Assurance Incorporated

Operation Pollinator™ in New Zealand kiwifruit | Syngenta

Sustainable Milk Company | Miraka | New Zealand

Sustainability the Zespri Way

Synlait-LWP-Black-Book-Update_100918.pdf

Tatua Dairy Products Supplier & Manufacturer – Tatua Dairy » Tatua

Tiaki (fonterra.com)

ZQ Natural Fibre | On Farm (discoverzq.com)

Government agencies

https://www.doc.govt.nz/our-work/five-minute-bird-counts/

https://www.doc.govt.nz/get-involved/funding/nga-whenua-rahui/

Hill Country Erosion Programme for councils | Te Uru Rākau – New Zealand Forest Service | NZ Government (mpi.govt.nz)

Productive and Sustainable Land Use | Funding and rural support | NZ Government (mpi.govt.nz)

Projects funded by Jobs for Nature (doc.govt.nz)

Te Mana o te Taiao implementation plan: Biodiversity (doc.govt.nz)

Te Mana o te Taiao is about making a collective difference » Manaaki Whenua (landcareresearch.co.nz)

Wilding conifer control in NZ | Biosecurity | NZ Government (mpi.govt.nz)

Funding sources

Community funding | WWF New Zealand

Environment Investments – NEXT Foundation

NZ's first farm sustainability linked loan to deliver water and biodiversity benefits – BNZ Debrief

Rural Sustainability Loan for farmers | ASB

Case studies

A Community for Naturalists – iNaturalist NZ

About the programme – Trees That Count

AwaRua™ Organics | Our Organic Farms (awaruaorganics.co.nz)

BPCT.org.nz – Resources

Biodiversity | – NZ Landcare Trust

https://coolfarmtool.org/coolfarmtool/biodiversity/

Environment Add-on (nzgap.co.nz)

Flagship projects – Project Crimson

Home » Hawke's Bay Biodiversity (biodiversityhb.org)

Latest funded projects – Te Wai Māori (waimaori.maori.nz)

Benefits of Biodiversity to Farmers

Pāmu and Westpac NZ Environment Add-on (nzgap.co.nz)agree market-leading Sustainability-Linked Loan | Westpac NZ

Plant biodiversity & biosecurity » Manaaki Whenua (landcareresearch.co.nz)

Past Quake Farming Ecology 4WD Day – Post Quake Farming
Website was established and continues to support landowners around vegetation and freshwater assessment and bird counting following the Kaikōura earthquake.

SIZA Environmental (globalgap.org)

Sustain - Rātā Foundation (ratafoundation.org.nz)

The New Zealand Game Bird Habitat Trust | Fish and Game

www.treesforbeesnz.org

What We Do – NZ Landcare Trust

What we do | The Forest Bridge Trust

General resources

NZ Biodiversity Assessment Tool Prototype (shinyapps.io)

NZ Landcare Trust https://www.landcare.org.nz/resources

Carbon forestry with regenerating natives – Carbon farming by allowing marginal pasture or agricultural land to revert to indigenous forest can be practical and inexpensive, especially for large areas.
https://www.scionresearch.com/__data/assets/pdf_file/0018/66114/Carbon_Forestry_InfoSheet.pdf

Botanical society (their members are very knowledgeable and love exploring new areas and sharing their knowledge) https://www.nzbotanicalsociety.org.nz/

Eco-logical Farming handbook. Dr Wendy Seabrook, Learning by Nature, Queensland, 2019

Forest and Bird have this www.forestandbird.org.nz/resources/how-identify-new-zealand-birds to help with bird identification. Further detail is then found on Home page | New Zealand Birds Online (nzbirdsonline.org.nz)

International guide which has some very practical assessment tools for landowners can be found on
https://www.agricology.co.uk/resources/simply-sustainable-biodiversity

https://www.wetlandtrust.org.nz/

Wetlands as farm assets Managing Wetlands As Farm Assets | – NZ Landcare Trust

Supporting native (indigenous) forestry
https://www.mpi.govt.nz/forestry/native-indigenous-forests/supporting-native-indigenous-forestry/

The Farming With Native Biodiversity project has developed multiple resources on how to practically manage and improve biodiversity on farm
https://www.biodiversity.nz/



Te Kāwanatanga o Aotearoa
New Zealand Government