Farm Environment Award
TRUST
Good Environmental Management Is Good Business

Managing Natural Features on Farms

Some people call it the 'bush block', the 'rock outcrop' or the 'swamp in the gully'. Others use words like 'indigenous habitat' or 'biodiversity'. It doesn't really matter how you describe the natural features on your farm, it's how you manage them that counts. In this booklet we look at how some top farmers make the most of the wilder parts of their farms and get some farm management benefits into the bargain.

Good management brings *farm benefits*

What can you gain from well-managed natural features on your property? The farm management spin-offs reported by the farmers in this booklet include:

- Fewer stock lost when tomo, swamps, streams and steep bush blocks are fenced
- Better water quality for stock water reticulation
- Shade and shelter for stock alongside fenced bush
- Trees provide shelter for pasture, increasing grass growth in summer and winter
- Less nutrient transferred away from pasture areas when stock no longer camp in the bush
- Better internal farm subdivision from running new fences off those around bush
- Reduced drain and culvert maintenance when steep areas are fenced
- Greater production gains on the better land when inputs are focused there.

Principles for achieving *good results*

The farmers featured in this booklet have some common approaches to successfully protecting natural features.

- ✔ Start by looking after the features you already have on your farm and extend your efforts around these areas or protect a different type of habitat, such as a wetland.
- ✔ Keep stock out of special natural areas on your farm – the bush and your stock will be safer. You'll also keep nutrients on your pasture where they'll grow grass, rather than in natural areas where they'll grow weeds.
- ✔ Do a little bit each year – don't bite off more than you can chew. Start close to the house so you can enjoy the benefits (native birds, healthy native plants).
- ✔ Find out what is special or rare in your area and protect any examples on your property.
- ✔ Undertake regular pest control to keep protected areas healthy and safe for native wildlife.
- ✔ If you're restoring areas, use species that grow in your area naturally.
- ✔ Plant carefully to reduce weed problems in areas fenced from stock – using the right number of plants will avoid leaving gaps where weeds could grow.
- ✔ Connect up areas of natural habitat on your farm where possible. For example, a shelterbelt running between two areas of bush could provide a corridor for wildlife.
- ✔ Maximise the farm benefits from any work you do. For example, fence bush areas so that you can run additional subdivision fences off the new fence.
- ✔ Where possible, work together with your neighbours to protect natural features in your district – you'll make more progress and could save money on bulk deals.

Taking *action*

To help you think about what could be possible and practical on your farm, we've developed a simple planning and costing guide. The practical guide is included inside this booklet. Use it to work out what actions would make the most difference to the special areas of your farm and see what it might cost to get started.

Farmer Stories About *Protecting Natural Features*

Protecting bush *adds value to the farm*

Bruce and Bev Dean in a replanted area

Protecting bush remnants was a starting point for Bruce and Bev Dean when they bought their 115 ha drystock farm on the flanks of Maungatautari in 1984. These days, seven hectares of bush are fenced and protected by a QEII National Trust open space covenant. The Deans have also progressively retired and replanted steeper, less productive land in natives and exotics to enhance their unique farm landscape.

Bruce talks candidly about how he and Bev had always been keen trampers but didn't have a particular interest in trees or conservation issues. That is, until an article on National Radio by international environmentalist David Suzuki in 1990 had a profound impact on Bruce. "It really made me think about looking after what we've got."

Because they're on a relatively small block, the Deans say they have to work hard to be economically sustainable but find that protecting and restoring bush areas only adds value. Bev says that retiring areas has had a negligible effect on production. Gully fencing has made stock management easier, stopping stock from scattering into wet areas. "Now all the stock are in one spot and much easier to move and manage."

Talking about an area of bush they fenced ten years ago, Bruce says the regeneration has been incredible. "You could originally see from one end to the other, now you have to fight your way through it." The regeneration started in the first two to three years and today there are hundreds of seedlings. The site is now becoming an important source of seedlings for local bush restoration projects.

The ground rises steeply in the paddock above their main QEII bush block, so Bruce and Bev decided to retire and replant the area. They say this has made mustering easier. They planted a row of lemonwood and flax around the fenceline of the newly retired area to provide a windbreak and shade for other natives. Inside this they've planted karo, totara, manuka and flax, which they plan to just leave and let nature take its course.

For people considering bush protection on their farm, Bruce and Bev say "Environment Waikato and QEII can provide incentives that make it more affordable." And the rewards are plenty. Aside from farm benefits and healthy bush, the Deans enjoy being on the flight path for numerous kereru heading to the mountain, as well as playing host to many other birds and rare native bats.

Pest control has become a more important job on the farm over the years. Bruce traps magpies, catching up to six a day. His homemade tunnel trap (an old nail-box) baited with rabbit also proves effective for catching ferrets. The Deans feel fortunate to be in an area that's treated with 1080 poison and reckon that birdsong has noticeably increased with the decline in possum numbers. The eye-catching seasonal displays of rata flowers are testimony to both successful pest control and the Deans' careful focus on looking after our natural heritage.

Environmental Benefits

- ✔ Fencing bush prevents stock damage to existing trees and results in rapid native regeneration.
- ✔ Planting around forest edges protects the bush from wind, improving seedling survival and reducing weed invasion.
- ✔ Ongoing pest control improves forest health and creates a 'safe haven' for native birds to nest in.
- ✔ Protecting bush at the top of catchments improves water quality for downstream users.

A little bit of regular effort *goes a long way*

When Brian George moved to his Waitawheta dairy farm 20 years ago, there wasn't much bush around so he thought he'd do his bit to enhance what was there. He began with fencing and covenanting the only big patch of bush. "It's been there for thousands of years and I want it to stay there." From there he progressed to planting natives in some of his smaller gullies. "Fencing and retiring tricky areas is just common sense really because sooner or later you'll lose an animal in a gully or river."

While it's easy to plant pines, Brian feels natives give more variety and are more of a challenge. He does a little bit of planting and fencing each year to enhance what's already there and to keep weed control manageable. Brian reckons the best way to establish natives successfully is to use decent sized trees. He also sprays before planting and plants in June because the grass doesn't get away until October.

When Brian purchased another block of land three years ago, he retired a hectare of pole kahikatea and matai forest, fencing it from stock and replanting the margins. He also retired a wide strip of regrowth bush along the edge of the Waitawheta River and says, "It's surprising how natural growth is coming back." He believes plantings and fenced bush will take care of themselves for the most part. However, he does caution that it's important to fence them properly. He uses five to six wires (one hot) but doesn't bother with battens.

Brian reckons it takes about three years for natives to get going, "Then they just bolt!" He says once trees are over four years old, he doesn't have to worry anymore. He finds kanuka hard to get going, especially when planting it into grass, while karamu and lemonwood are the easiest. He looks at what's already there and aims to plant the same species.

Brian talks proudly of a grove of 14 metre high kauri that he planted when he first came to the farm, saying the secret was sun on their heads and competition to drive them up. "While you need to have a certain amount of time and money, it's mostly enthusiasm that achieves results." He plants around 300 natives each year and gets a real boost from seeing the regeneration.

Brian George amongst his plantings

To deal with possums, Brian uses bait stations filled with either Talon or Pestoff (brodifacoum). He's noticed more bird life on the farm since he's been trapping magpies but is concerned about stray cats. He has some problems with Japanese honeysuckle, blackberry and barberry, which he sprays every year, taking care not to damage natives. He says the key to managing weeds in planted areas is to prepare the site properly before you start.

Overall, Brian believes his protected bush areas complement the farm operation. "Fencing bush makes the farm run easier because we don't lose stock."

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Environmental Benefits

- ✔ Fencing and covenanting bush results in regeneration of native plants.
- ✔ Fencing and replanting stream edges creates a healthy corridor for native birds and fish. It also improves water quality.
- ✔ Regular pest control prevents damage to trees and wildlife.
- ✔ Long-lived native trees will accumulate carbon over centuries, helping to reduce the greenhouse effect.

Picturesque limestone *landscape protected*

Taylor White runs Glenesk-Wairere Farm at Te Anga in partnership with his youngest son Jeffrey. Taylor and his late wife Gladys bought the 294 ha property in 1960. They cleared large areas of bush with the goal of developing a productive drystock farm, leaving around 20 hectares of the best bush untouched. These days, about 220 hectares is in grass and the rest is native and exotic trees.

Over the years, the White family has fenced off most of the picturesque limestone outcrops on the farm, planting the edges of some in pines, macrocarpa, blackwood and Douglas fir. The main motivation for fencing has been to stop stock losses. They run mainly dairy grazers which, Jeffrey says, "Will go anywhere and get stuck."

Taylor White and his son Jeffrey

The Whites' strategy is to do a little bit each year, putting fences up in summer and planting in winter. Using a variety of tree crops in marginal areas means land use is better suited to terrain, while plantings on the edge of bush remnants help reduce wind effects on natives. Taylor's son Stanley has also planted more diverse species such as olive, tamarillo and other fruit trees in the fenced rocky areas, where the heat of the rocks provides a warmer microclimate.

Taylor describes the original bush remnant in the centre of the farm as thick with rimu and rewarewa. Other parts of the farm feature groups of 60-70 year old rimu. Taylor says, "Once you fence off bush, it looks after itself and young seedlings really come away." The Whites' biggest neighbour on their bush boundary is the Department of Conservation (DOC). Taylor feels they have an excellent relationship with DOC, who have helped with 1080 control on farm bush blocks.

When it comes to fencing off sensitive areas, the Whites use nine wires with no battens. Taylor used to be a great believer in battens but finds they're not practical or necessary for the grazing heifers. In some of the trickier areas, son Stanley (who does most of their fencing) has used rocks and trees as post strainers. Taylor feels fencing off these areas benefits the overall farming operation because it has helped improve internal subdivision.

Fencing of waterways is done primarily for stock safety. Jeffrey reckons fencing the river has been a real cost-saver, as they previously lost about 12 animals a year. The farm's name, Wairere, means running water and the property has plenty of it, including one of the farm's most special features, the 'water race': a spectacular, narrow limestone channel feeding a tiered, shallow waterfall. The farm is also dissected by the Marokopa River, an important trout and whitebait fishery, which benefits from the Whites' approach to fencing.

Because they're in a Tb area and border a DOC forest park, their bush areas are regularly treated with 1080 so possums aren't too much of a problem. Over the last 18 months Jeffrey has concentrated on trapping magpies, netting around 1500.
As a result of their pest control work, they've noticed lots of birds are coming back that haven't been around for a long time. Taylor is about to organise stoat traps because he sees these and feral cats as the next issues to deal with.

Environmental Benefits

- ✔ Fencing bush and limestone outcrops prevents stock damage and results in rapid regeneration of native plants.
- ✔ Planting around edges protects the bush from wind and reduces light levels, reducing the risk of weed invasion and improving seedling survival.
- ✔ Fencing streams prevents damage to streambeds from stock, improving water quality and habitat for stream life. This also benefits downstream users and fishers.
- ✔ Taking time to observe natural areas on the farm allows focused pest control, protecting habitat and native birds.

Conservation and farming *is a family affair*


Christine Hedges

David Hoyte's philosophy is that the land on his mother Christine's Waotu dairy farm, where he sharemilks with partner Tracey, will be either in intensive pasture or retired – nothing in between. This has led them to extend fences around existing bush to bring in outlying trees, with Christine working hard to replant natives in the gaps. "Bush doesn't grow grass anyway so we might as well fence it off. There's nothing under bush but damage if you let stock in."

David's mother Christine Hedges has been the driving force behind protecting natural areas on their farms but he says it has grown into a real family affair. Their second farm features New Zealand's first ever QEII National Trust open space covenant, which Christine has enhanced with additional planting using local plants she has grown.

The bush areas on the farm mean that David and Tracey's garden is rich with native bird-life. Christine traps magpies to help encourage native birds, catching up to four magpies a day using pork fat as bait. They also have 32 possum bait stations around the farms, which Christine fills using a brodifacoum bait.


Fenced wetland on the Hedges farm

Most of the creeks, swamps and gullies on the two older farms are fenced from stock, because as David says, "They're a big hazard. The worst thing about waterways is the cost of animals getting stuck or lost." A big wetland area was fenced five years ago and Christine planted it with kahikatea. David's first thought was to drain it. These days, he reflects "I could've got more land but it wouldn't have looked so good."

His brother Stephen has experimented with mixed native and exotic shelter planting on the main farm, with promising results. The 800 metre long shelterbelt is three rows deep, made up of pines on the outside, followed by tree lucerne[1], manuka and flax, with a row of kauri and rimu on the paddock side. While he was initially concerned about lost grazing, David concedes there have been definite benefits for stock and better grass growth. Because the shelterbelt is on the southern boundary, it provides excellent wind protection, improving production for about eight hectares of pasture.

Two urupa (Maori cemeteries) and an archaeological site on a small block of Maori land are unique features of the main farm. David and Tracey graze part of the site under agreement with the Maori landowners from Ngati Huri. These Maori landowners work alongside neighbours, lessees and agencies to maintain their guardianship role over local land, water, wildlife, vegetation and waahi tapu (sacred areas). This means consultation is important.

At one point, the Maori Trustees gave permission to 'tidy up the area'. However, when a Trustee saw smoke coming from the site and found machinery clearing the blackberry and pine trees, it raised concerns about disturbing the ancestral burial area. A potentially unpleasant situation was avoided by David and Tracey's willingness to stop work while discussions were held with kaumatua (Maori elders). A solution was arrived at where David and Tracey regrassed the area, marking the archaeological site with local boulders and organising a plaque to denote its significance. They say it has been an important learning experience for them about how to work together with local iwi, who have open access across their farm to the site.

[1] Should be planted at wide spacings and progressively thinned as natives mature.

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Environmental Benefits

- ✔ Fencing bush and wetlands prevents stock damage, resulting in rapid regeneration of native plants. This is supported with good pest control.
- ✔ Shelterbelts create corridors for native wildlife to move between habitats in the local area.
- ✔ Protected gully wetlands provide habitat for native fish and wetland birds such as the shy spotless crake.
- ✔ Protecting natural features and showing respect for cultural sites preserves heritage landscapes for future generations.

Ngatea farm *is a wildlife haven*

One of Rhys and Hilda Jones' main priorities on their 182 ha drystock property in the hills west of Ngatea has been to fence off all the streams, swamps and gully wetlands. Rhys says his father and grandfather discovered years ago that draining swamps led to slipping, so instead he fences them off and creates ponds for wildlife.

Autumn colours around a fenced pond, Jones' farm

Rhys points out that fencing the swamps improves stock welfare by keeping them safe, providing shade and shelter and encouraging them to use clean trough water. "Animals don't get trapped and die, or get salmonella from the dams, which was a big thing here a few years ago."

He also talks about the huge improvement in pasture growth within one paddock. "The shelter from our plantings has created warm microclimates. However these are also areas where we get eczema because there's no wind. We've used Pasja in those places, which helps because it contains zinc." He also reckons the shelter has greatly increased his lamb survival.

When it comes to managing weeds, Rhys and Hilda are strongly opposed to blanket spraying because of its effects on wildlife and trees. They use an Escort and Round-Up mix painted around the base of woolly nightshade, the main plant pest on the farm, to prevent re-seeding.

They plant up wetter areas straight away to keep blackberry out, using Round-Up in a knapsack to deal with any that does come up. Overall Rhys reckons they've had no more weeds from planting and fencing off areas than they would have had otherwise. "There's not really any gorse or blackberry in our fenced areas because they get choked out by the plantings."

The Jones' have also fenced off bush on the farm and planted around 1000 natives. Some hillside areas on the farm have been planted in pines – "Our retirement fund!" In the more recently fenced wetlands, they're planting Kawa poplars with the idea of eventually getting some financial return. They keep costs down by using recycled wire and posts for fencing. Rhys says, "We only have to buy staples for fences at the moment because we recycle so much." He points out wooden gates made from old kiwifruit framing and hardwood strainers made from old power poles.

Many of the dam plantings include exotics such as crimson oak for autumn colour, along with silver birch, Eucalyptus species, maple, kowhai, cabbage trees and ponga. Rhys is noticing plenty of regeneration coming up in the undergrowth and has been especially excited to see frogs returning over the last few years.

Rhys and Hilda say that after almost 10 years on the farm they feel like they're really starting to see progress. Their approach is to do a little bit each year and now they look back to see a surprising amount of achievement. "You don't have to do it all at once."

Rhys and Hilda Jones with an FEA judge

Environmental Benefits

- ✔ Fencing swampy gullies and stream edges prevents stock damage, allowing native regeneration and improving habitat for native birds and fish. It improves water quality.
- ✔ Wetland areas with open water and shrubland provide ideal habitat for waterfowl, including the dense vegetation cover that our shy native birds require.
- ✔ Regular attention to weed control prevents weeds taking over planted areas and causing problems elsewhere on the farm.

Working with the lie *of the land*


Peter and Gael Levin

When asked how he would define natural areas on his 265 ha Taupiri bull farm, Peter Levin says "For me it's really about making the most of the farm's unique topography. We try to make a gully planting look like it's always belonged. You look at it and think it should be there, it's right." This approach led him naturally to the many gullies that wind their way through the property. Peter and farm manager Wayne Dreadon have gradually planted natives in most of the streamside areas on the farm, creating a highly attractive landscape and protecting the most sensitive areas from bull damage.

"You've only got to look at the plantings to see they're improving everything. It's enhancing our ability to farm and move stock around, it's improving the values of the farm and it's increasing our enjoyment," says Peter. His wife Gael adds that mature trees add to the sense of privacy on the farm.

And the cost? Peter says that it's not significant compared to the overall production from this highly profitable farm. "If we spend three or four thousand a year on plants, it's three reasonable-sized works bulls out of a total sale of 450. It's not a big percentage."

The Levins' successful strategy has three main aspects: protecting what's already there, creating plantable areas in gullies and then re-establishing hardy native trees.

To protect existing features, Peter and Gael have covenanted a long strip of mature bush along the Komakorau Stream, including a pa site. In addition to retaining some of the area's now rare original forest cover, Peter sees a spin-off for his pastures in excluding cattle from the trees. "There's a significant nutrient transfer in dung and urine when stock camp under trees and that's not being used to grow grass."

To create plantable areas in swampy, willowy gully bottoms, Peter has cleared the willows bit-by-bit and then used a digger to form ponds. The spoil from digging the ponds is spread on the gully sides to create the perfect area for planting native trees.

The Levins have a remarkably successful revegetation strategy in these gully areas. First, spots are sprayed using Round-Up, and the spots counted so they know exactly how many trees to order. They order hardy natives such as karamu, lemonwood and kanuka, preferring at least a PB3 grade so they survive the hares and pukekos. These are spaced 1.5–2 metres apart, with each species being set out for planting in turn, and toetoe and flax placed around the edges.

Several years after the hardy trees have established, Peter will interplant a few larger canopy species like rimu, kauri and matai. This general approach has resulted in little need for weed control, though Peter will sometimes need to replant where trees have died to prevent weed growth. Convolvulus is managed by pulling the climber off the plantings and spraying with 50D, carefully avoiding the native trees.

Peter hopes to protect these new plantings with covenants too, and his passion for getting precise production figures may pay off here – he has had his farm GPS-mapped and this will make the covenanting process much cheaper and easier.

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Environmental Benefits

- ✔ Restoration planting using local species helps preserve natural character and provides habitat for native birds and insects.
- ✔ Fencing bush prevents stock damage to existing trees and allows regeneration. It also prevents nutrient enrichment of forest soils, reducing weed problems.
- ✔ Fenced and replanted gully areas help filter farm runoff and reduce stream temperatures, improving water quality for stream life.
- ✔ Protected and replanted areas link together to provide a corridor for native wildlife.

Stabilising earthflows *has benefits for caves*

Over half of Ken and Rebecca Haywood's 207 ha Te Kuiti drystock farm is sedimentary clay over the top of papa, which Ken describes as inherently unstable. When they moved there 11 years ago, Ken felt that stabilising the land was a priority, or they'd end up with no farm. He also felt it was the key to unlocking the property's productive potential.

Ken sought advice from a range of people and developed a system combining effective drainage with planting to stop his farm from moving. A series of intercept drains take water off slopes up high, stopping it from percolating through underneath and creating soil movement. Ken says a surprising amount of water comes out of the drained earthflow areas – "No wonder they were like porridge in the winter." Drainage was followed by recontouring, regrassing and strategic poplar planting. Ken estimates that where they originally ran five to seven stock units per hectare on the unstable land, now they're running about 15.

The aboveground work has had real benefits for the unique limestone cave system that runs beneath the farm, according to Ken. It often used to flood across the bottom flat and the creeks up higher would run dirty in rain. "Now they only run dirty with a lot of rain. The entrances to some tomos are opening up now as the old silt is removed and no more builds up."

Ken believes they've been able to raise the productivity of land and at the same time improve its condition. "This is an example where development can go hand in hand with enhancing the environment." He's noticed that culvert and fence maintenance costs have reduced now that the country has been stabilised.

Ken describes fencing bush and wetland areas as the icing on the cake, after dealing with the farm's inherent instability. He has two blocks of QEII National Trust covenanted bush, both of which are on less productive parts of the farm. Ken says the covenanting process has enabled farm intensification because he's been able to run internal subdivision fences off those around the bush, allowing much better grazing management. He also reckons it's easier to farm because he no longer has the hassle of mustering stock out of bush. "It's improved the whole workability of the place."

Ken Haywood

When it comes to fencing bush, Ken says, "Nowadays there are enough 'carrots' to entice farmers to do it (like QEII and regional council grants), plus there are some key farm benefits." Time is an important constraint for Ken because he's largely a one-man-band. He rarely used to get a clean muster but does now with the bush areas fenced.

The Haywoods are now considering fencing stock out of a large wetland area and covenanting it. Ken says "Every time I muster that paddock, it takes time to get the sheep out of the wetland. I could drain the whole thing but you've gotta ask how much benefit you'd gain relative to the cost."

Environmental Benefits

- ✔ Stabilising the earthflow has reduced erosion, greatly reducing siltation of cave systems and protecting limestone features, water quality and cave life.
- ✔ Fencing bush and wetlands prevents stock damage and results in rapid regeneration of native plants.
- ✔ Protecting wetlands improves water quality and allows storage of rainwater, reducing downstream flood peaks.

For more information about the **Farm Environment Award Trust,** please contact us either through Environment Waikato's **Freephone 0800 800 401,** email at **farmenvironment@clear.net.nz,** or PO Box 4464, Hamilton East.

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