



## CLIMATE CHANGE AND EFFICIENT RESOURCE USE: CASE STUDY 2

# KNAPDALE ECO LODGE

## Sustainable, profitable, environmentally friendly

### ABOUT THE KNAPDALE ECO LODGE VENTURE

- Eight hectares of the 32-hectare farm is in both native and exotic forest, with future potential for carbon offsetting.
- Produces beef, venison, venison salami, honey, fruit and vegetables for food supplies with the surplus sold at the Gisborne Farmers' Market.
- Low ecological footprint of the house achieved through building with locally-sourced timber and use of solar energy.
- A thriving function centre for corporate events and weddings, and five star guest and hosted accommodation (Qualmark rating).



### CLIMATE CHANGE PROJECTIONS FOR THE REGION

- The East Coast of the North Island is expected to warm by about 1°C by mid-century and more than 2°C by late century.
- Scenarios suggest that temperature increases will be highest in summer and autumn, with less warming in spring.
- Annual rainfall is likely to decrease overall, dominated by 10–15 percent less rain in winter and spring.
- In contrast, summer could become up to 10 percent wetter, although this is less certain.

*Kees and Kay Weytmans' story illustrates how actions aimed at mitigating environmental risks provide a range of benefits and opportunities, such as soil protection and future carbon trading.*

### RESPONDING TO A CLIMATE CHANGE THREAT

In 1991, Kees and Kay began a programme of reforestation on their family's property to combat the damaging and costly effects of erosion. They recognised that damage to the bare land would increase over time if no effective tree cover was established, particularly as climate change could lead to more extreme weather events.

The couple has undertaken a variety of eco-friendly initiatives that increase the resilience and productivity of their land in an integrated manner. These activities are supported by a thriving business that taps into the lucrative eco-tourism market. In addition they have built the house of their dreams, with an ecological footprint in keeping with their vision of sustainability.

### THE WEYTMANS

A forestry graduate from the Netherlands, Kees Weytmans met nurse Kay in Nepal where they discovered they share the same philosophies in life. Kees believes that the goal to grow one's own food is in every man's heart, and at Knapdale Farm the ability to do so in privacy and tranquillity is a dream come true.



Kees (left) with visitors to the farm.

As a practising forester Kees works alongside Crown Research Institute Scion, as well as East Coast/Tairāwhiti landowners, to restore degraded native forests. In addition to the lodge, Kees now runs Forest Measurement Ltd, a forestry consultant and contracting business.

## THE LAND

The 32-hectare farm at Waihirere has been in the McMillan family for three generations and was used as a small-scale dairy farm and Friesian stud. Over the years, the land has been severely ravaged by floods, most significantly by the Ngatapa flood in 1985 and again in March 1988 when Cyclone Bola caused devastation across the region.

Back then, there were no trees on the land, and the resulting erosion has left scars that are still visible today. Then in 1991, when fire ripped through the gorse and blackberry covered hillside, Kees grabbed the opportunity to reforest and protect the land from further erosion. He saw future damage as inevitable due to the predicted increase in fire danger and severe cyclonic events for the region.

Kees describes the replanting: “We started out planting exotic species with the objective of producing knot-free timber, and maintaining high stockings to shade out the gorse and limit its return.

“But over time, we decided we wanted to support the return of native trees to the land not just for their timber values, but to help increase the volume and variety of bird life.”

Kees stresses that they are not doing anything original but are instead returning to the type of lifestyle enjoyed by Kay’s parents – living off the land.

“You have to have your eyes wide open to the opportunities provided by the land,” Kees says. “Our direction was dictated to us by the soil – what was it like, what could it sustain? That drove our decisions in terms of crops and stock.”

Today, the land supports:

- Twenty hectares of grass, eight hectares of forest, four hectares of amenities.
- Grazing for sheep, deer and cattle (Scottish Highlanders).
- Twenty beehives – the bees pollinate the clover, which keeps nitrogen in the soil at sufficient levels. There has been no nitrogen or artificial fertiliser applied to the soil since 1981.
- A one-hectare lake complete with eels.

## TOURISM AND HOSPITALITY VENTURE

Following the completion of their home, Kees and Kay immediately opened up as a reception venue, capable of hosting up to 72 people inside and the potential for another 80 in the entertainment area outside. They also offer five star accommodation for up to four people.

The eco tourism venture centres on two aspects: guided farm and forest tours, and authentic Māori experiences, which take place on the registered historic sites at Knapdale.

Situated high in the hills of Knapdale Forest is Whaitiripapa Pa, one of four defending pa sites protecting Tirotirowhetu, a village established between 1300 and 1400 AD that housed up to 2500 Māori. Waka Toa, a Gisborne based kapa haka group, welcome visitors with authentic cultural performances, and explain the history and significance of the area.



The lake complete with eels.

The venture is a community partnership, with Knapdale providing the venue and Waka Toa undertaking the performances. Both parties maintain the site and Waka Toa provides the vision and planning for the future regarding the historic site.

## ACHIEVING A LOW ECOLOGICAL FOOTPRINT

The lodge itself was completed in 2004, and built of materials with as small an ecological footprint as possible. Most of the structural timber was sourced within a 20 km radius of the lodge, is farm-forested exotic species, and was milled by a local two-man operation sawmill.

Ninety percent of the timber used is Lawson's cypress, which is naturally durable. Other wood species used are Macrocarpa and Douglas-fir. Ply cladding is from sustainably managed radiata pine, treated to provide durability.

Poplars and round wood from Knapdale production thinning are used for fencing, landscaping and retaining walls.

## ENERGY

- Hot water is provided by a large solar panel in summer and a wetback fire stove in winter.
- For 8–9 months of the year, the lodge does not draw on the electrical grid for hot water.
- Electricity is sourced from the nearby Tuai hydro plant, which means the Eco Lodge is run entirely on renewable resources.
- A passive, solar, under floor heating system uses electricity only for a small water circulation pump.

## WATER MANAGEMENT

- The house uses rainwater exclusively, filtered for drinking.
- A bore and submersible pump provides water for the farm.

## WASTE MANAGEMENT

- A small sewage treatment plant produces grey waste water, which in turn irrigates a small native tree garden.

## A NEW BUSINESS OPPORTUNITY

Into the future, the Weytmans hope to establish a new element to their ecotourism venture by adding a tree planting programme to offset carbon. While this would be the primary objective of the planting, the beneficial effect on soil conservation, water quality, biodiversity, landscape values and timber production purposes will also be very significant.

## KNAPDALE ECO LODGE AWARDS

1. Awarded the 2003 Rural Environmental Awards by the Gisborne Regional Council, in co-operation with the Department of Conservation.
2. Kees was awarded the 2006 Farm Forester of the Year Award, North Island, by the New Zealand Farm Forestry Association.
3. Awarded the Gold and the Supreme Award during the 2006 House of the Year Awards as well as the Pink Batt Insulation Award by the Master Builders Association.



The Eco Lodge.

# Key points

- 1 Reforestation is a key land management tool at Knapdale, used to combat the effects of erosion and protect against the impact of further extreme weather events, projected to increase in frequency and severity due to climate change.
- 2 A variety of eco-friendly initiatives have been implemented increasing the resilience and productivity of the land.
- 3 This eco-friendly activity has also resulted in a thriving business that taps into the lucrative eco-tourism market.
- 4 Sustainable energy generation, water and waste management systems complete the picture of an award-winning venture into environmental protection.



Waka Toa, a Gisborne-based Māori cultural performance group, welcome visitors with authentic cultural performances.

## THIS IS ONE IN A SERIES OF CASE STUDIES CALLED CLIMATE CHANGE AND EFFICIENT RESOURCE USE

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## FOR MORE INFORMATION

- For more information on Knapdale Eco Lodge, visit [www.knapdale.co.nz](http://www.knapdale.co.nz)