

# Iwi Innovations and Initiatives Promoting Sustainable Land Management



*Truffle inoculated oak tree plantation, Wharenui Station Rotorua*

**Sustainable Management Fund, Project Number: 2238**

**Addressing Land/Water Issues Through partnerships in Rotorua**

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**NZ Landcare Trust**  
*landcare action on the ground*

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# 1 Introduction

Much of the land in the Rotorua Lakes catchments is iwi owned. This brief report highlights some of the innovative ways in which iwi land owners are promoting sustainable land management. A couple of initiatives from around the country have also been documented as examples of what may also be possible in the Rotorua area. In particular a biofuel project being carried out nearby in the Lake Taupo catchment.

## 2 Iwi Initiatives

### 2.1 *Truffle Growing – Ngati Whakaue Tribal Lands*

Ngati Whakaue Tribal Lands Incorporated was formed in 1960 with the amalgamation of some 34 individual parcels of land owned by approximately 4,500 maori owners. These blocks of land were amalgamated into three large farms. Wharenui Station has a land area of 1231.5 ha, (Ngati Whakaue website) and it is on this farm that a number of initiatives are taking place to promote sustainable land management. The most recent development is the move away from dairy farming and setting aside 10 hectares of land for growing truffles. 4000 evergreen oak trees inoculated with the truffle fungus were planted in September 2007 with a local team of forestry people, with an automated computer controlled irrigation system added in December. (Rick Vallance, Personal coms).

According to Southern Cross Truffles Nursery Ltd. production of truffles can be projected from an initial 2-4 kg/Ha to 40-60kg/Ha over a subsequent 5 year period. Thus, after say 10 years, on-going production should be at least 40kg/Ha/year. In New Zealand there have been instances of yields in excess of 90kg/ha, and one plantation in the Bay of Plenty is apparently achieving yields in excess of 200kg/Ha.

Assuming that correct inoculation and then appropriate on-going husbandry has taken place and that each tree is producing, some estimates can be made regarding yield. Basing on the Tasmanian situation, about 70% of the truffles produced are graded as premium quality, which currently sell for A\$3000/kg. The rest sell at a discount of about 35% and are usually converted into other value added products. Thus, currently, possible returns/ha can be around \$161,100/Ha/year (Southern Cross Truffle Nurseries Limited, Brochure)

By using the land in this way rather than pastoral farming the potential reduction in nutrient loss to the lake is hugely significant.

## ***2.2 Practical Mitigation Options to Reduce Nitrogen and Phosphorus***

As well as the truffle initiative on Ngati Whakaue lands the Wharenui farm has a number of scientific trial sites investigating practical mitigation options to reduce nitrogen and phosphorous losses from farms into Rotorua lakes. Investigations by AgResearch and NIWA are currently focusing on phosphorous losses using a range of P sorbing materials, grass hedges and nutrient stripping using watercress (see Land Use Research Inventory in Milestone 3 for full details of projects).

## ***2.3 Rotorua Federation of Maori Authorities Initiatives***

The following information was gained from personal communications with Tom Walters from Te Arawa FOMA. It is a brief summary of the initiatives that FOMA are involved with in the Rotorua area:

“The most compelling issue Maori face today is the amount of land, its location, and its condition, which is now becoming available to the Tribes as the long lease tenures expire.

We will probably manage all our properties in house in the future and have a host of initiatives which indicate to us that this is the preferred future management option.

### *Soil*

We have joint venture partnerships in selected Maori Land blocks with the Federation of Maori Authorities and SCION where we are undertaking intensive soil testing regime’s to understand more about what soil we have now, and what may be our best future options for those soils.

This initiative is underway and we are into Phase 1.

### *Bio Fuels*

We have an option to venture into the growing of wood most suitable for the production of biofuel through the use of the tree berry rather than the wood content of the tree.

This initiative is underway.

### *Honey*

Some of our lands are laden with Manuka which in turn allows bees to produce a unique honey with certain qualities which are in demand on world food and health markets.

As well as utilizing what we already have in terms of resources, we are entertaining the option of growing more of the plants species in highest demand on the more desolate and isolated areas of our lands on the edge of mountain ranges.

### *Wetlands*

We are in the process of reclaiming wetlands and putting them into perpetual memorial type trusts where we can further nurture these areas and deny access for development of any nature.

### *Forests*

Forests continue to represent a major proportion of our industry and together with both farming and horticulture we are in the process of research into most sustainable land uses for many blocks, nationwide.”

## ***2.4 Energy Farming to Protect Lake Taupo – Ngati Tuwharetoa***

Excess nitrogen resulting from current land use practices in the Taupo catchment is flowing into Lake Taupo, and other lakes in the Central North Island. Dairy/ pastoral farming emits nitrogen through urine patches into the aquifer, which flows over time into Lake Taupo. Finding alternative land uses that are commercially viable and which will contribute to reducing N emissions into the Taupo catchment is a prospect for land owners faced with limits on pastoral production.

Energy Farming to Protect Lake Taupo aims to develop methods and a handbook to enable landowners to grow crops of salix (willow) to assist land owners in growing short rotation crops, especially Salix, the feedstock for ethanol and bio-polymers.

BioJoule Ltd. in conjunction with Agrigenesis, is exploring the opportunity to grow short rotation Salix. Through a bio-refining process, ethanol for fuel and bio-polymers for a range of bio-degradable plastics and films can be produced from coppiced Salix tissue.

There is the opportunity to produce 5% of NZ's transport fuel, and lead the world in bio-polymer technology, while mitigating the nitrogen impact of current land use practices and thereby protecting lake Taupo.

Seven ha of trials were established on three sites on Ngati Tuwharetoa land during 2005. Evaluation over three years will allow a handbook to be produced. Trials will also be available for demonstration of the concept to land owners. (MAF SFF Website)

As well as Ngati Tuwharetoa the project has involved discussion with Te Arawa, Ngati Kahanunu and Ngapuhi.

## ***2.5 Organic farming – Ahu Whenua Trust***

He Whenua Whakatipu has been established by the Agriculture Research Group on Sustainability (ARGOS) to assist Ngai Tahu landholders within Te Waipounamu (South Island) to generate sustainable livelihoods from the land and generate positive environmental and social outcomes (ARGOS Website).

A partnership between ARGOS and the Dawson family who lease Orohaki B reserve land from Ahu Whenua Trust has been formed to grow organic crops for the Christchurch market. In portable tunnel houses, Maori and researchers have teamed together to introduce low-cost but innovative technologies and growing techniques.

The aim of the project is to encourage Maori back to Orohaki B reserve land in the Mount Thomas foothills attracted by an income from an organic farm producing niche crops of capsicum, chilli peppers and aubergine. The planting of crops in the 5 tunnel houses marks the revival of a tradition of growing that stretches back 300 years. Food crops have been tended at Orohaki, a communal tenure farm owned by the Ahu Whenua Trust since it was a major stopping point for Maori in the long march to the west coast to find greenstone. Of late the 283ha Orohaki B reserve land has been economically marginal.

The property is one of five south island Ngati Tahu farms using research and new techniques to create ongoing farm work in an initiative viewed as a blueprint for improving the productivity of Maori land.

The projects research leader John Reid, from Te Runanaga o Ngai Tahu, expects several more case-study farms to join the initiative. "The land is in a variety of conditions, there are specific challenges involved because of communal tenure and dealing with governance issues. Usually the land area is small so we have to look at novel options" He says a range of high value but relatively low cost crops, such as gourmet mushrooms, linseed and buckwheat, are possible options. Reid says practical research will help find out the best development options in the Maori social context. (The Christchurch Press, 2006)

### **3 Conclusions**

From the report it can be seen that there are a number of innovative sustainable land management practices being carried out on iwi land. However in some cases more detail of the projects was not available due to commercial sensitivity. The alternative use of land from traditional farming is very diverse and will potentially lead to high revenues for the land owners. Another land use which is not covered here due to lack of information is tourism, which especially around Rotorua is and will continue to be an important use of land.

### **4 References**

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