

TRAVEL COMPLETION REPORT
NEW ZEALAND-HAWAI'I CONSERVATION EXCHANGE PROGRAM
For Rob Anderson, USGS-BRD

Sponsored and coordinated by the
Hawai'i Conservation Alliance
and

Manaaki Whenua Landcare Research New Zealand Ltd.

INTRODUCTION:

My visit to New Zealand was the result of my earlier interactions with Landcare NZ staff that first began in 1996 when Louise Morin visited me in Honolulu and discussed the project I was leading on the biological control of kahili ginger (*Hedychium gardnerianum*). Over the next seven years I became a regular stop for other Landcare biocontrol researchers visiting Hawai'i on the exchange program. Each time we would discuss the progress and success of the kahili ginger biocontrol project. After visiting field sites in Hawai'i, the Landcare staff believed that the kahili ginger biocontrol project might be successful in New Zealand and reported this to regional council members involved in invasive species control. In the spring of 2002, I was contacted by staff of several regional councils in New Zealand willing to sponsor my visit and encouraged to apply to the Hawai'i Conservation Alliance for participation in the New Zealand-Hawai'i Conservation program. The main purpose of my trip was to present an overview of the kahili ginger biocontrol program to regional council staff and managers and to learn about biological control programs currently underway in New Zealand. In November 2003, I spent 14 days on travel throughout New Zealand interacting with regional council and Landcare NZ staff discussing biocontrol projects and the possibility of transferring the kahili ginger biocontrol program to New Zealand.

Although most of my interaction was with the regional councils and Landcare NZ staff, staff from the Department of Conservation also attended presentations of my research. The regional councils were created to address a range of environmental issues particular to the different regions of the country. The regional councils are administered by a body of elected officials in each region that delegate responsibilities to biosecurity officers whose duty it is to enforce the Biosecurity Act of 1993. This act gives biosecurity officers legislative authority to control the introduction, movement, and propagation of invasive species on both public and private lands. The Department of Conservation (DOC) is in charge of protecting natural and recreational resources of conservation lands and national parks within New Zealand.

ITINERARY:

AUCKLAND:

I arrived in Auckland on Sunday afternoon of November 17th.and was immediately impressed by the stringent processes visitors to New Zealand must undergo to avoid accidental introduction of unwanted biological organisms. After passing my luggage through a sophisticated x-ray system that was monitored by alert inspectors, I was cleared and allowed to enter the country and begin my exchange. I first met Alison Gianotti, a plant pathologist with Landcare, who took me to my hotel and dinner later that night where we discussed the plan for my exchange.

On Monday Nov. 18th, I was taken to the Landcare research facility in the Mt. Albert area of Auckland. Here Alison and I discussed a project that she and I were collaborating on together that is aimed at determining a picture of what areas in New Zealand the bacterium *Ralstonia solanacearum* could be successfully introduced based on climate data from release sites in Hawai'i. With the help of climate experts at Landcare, Alison was able to produce maps of the country that indicated areas with degree days that are similar to our low temperatures experienced in the Hawaiian winter. Since the bacterium is a pathogen of tropical origin, we are unsure if it will be able to overwinter in New Zealand. After looking the maps, it seemed that conditions would be favorable throughout the North Island for the establishment of the bacterium. The northern tip of the South Island from Picton to Nelson also seems like an area that the bacterium could survive well through the winter.



I also presented my research in the afternoon seminar series to Landcare Staff at Mt. Albert and members of the Invasive Species Specialist Group (ISSG). After the presentation, I presented copies of a poster describing the current progress of the kahili ginger biocontrol project, and answered questions from the group. Later we joined together for refreshments where I got to interact with different Landcare staff personally.

Later that day I met with staff of the ISSG and discussed current biocontrol efforts in Hawai'i being investigated by the USGS, US Forest Service, and the HI Department of Agriculture.

WHANGAREI:

On Tuesday November 19th, I was picked up by Richard Gribble, a Biosecurity Officer assigned to the Auckland area. We headed up the west coast of the North Island on our way to meet another Biosecurity Officer, Brett Miller, who would take me the rest of the way to Whangarei. Along the drive we discussed different strategies for weed control and they presented me with pamphlets describing some of the regions major weed problems. These pamphlets were produced by each of their respective regional councils and were eye catching, and they immediately struck me as an excellent public outreach tool that could be used in Hawai'i. While

driving, I also saw many weeds such as gorse, manchurian rice grass, pampas grass, and kahili ginger.

The next day I presented my research to a group of DOC and Northland Regional Council staff. During our discussion afterwards, the group agreed that herbicidal control of kahili ginger would not solve the problem in the region, and a biocontrol agent would be welcomed. We also discussed the steps involved to implement the kahili ginger biocontrol program into New Zealand. Later I was driven around town and saw a potpourri of weeds. Here for the first time I observed kahili ginger as an urban pest of garden areas within the city (right).



Particularly impressive was the sign on one the main streets of Whangarei advocating destruction of the wild ginger to the public (below left). I also got to meet “Woody the Weed”, a public outreach tool used by the regional councils to educate people about environmental weeds (below right). Woody attends horticultural, flower, and other plant trade shows to complete this public service.



The next day I was driven down the east coast from Whangarei towards Auckland where I saw more infestations of kahili ginger.

AUCKLAND:

On Friday Nov. 21, I was invited to give a presentation at a biocontrol workshop sponsored by Landcare and the Auckland Regional Council (ARC). An introduction was first given by Jack Crow, biosecurity officer with the ARC, and a seasoned weed fighter with many years of experience working in New Zealand. Jack discussed how ideally, we need to prevent the introduction of harmful environmental weeds. However, once these weeds are established and out of control, biocontrol is a necessary tool for long-term management. Biocontrol essentially reestablishes a natural-enemy relationship that is missing in new environments. Once a natural-enemy relationship is established, the invasive species lose their competitive advantage over native species and cease to expand their range. In addition to my presentation, there were three other presentations were given by Landcare staff members Alison Gianotti, Nick Waipara, and Helen Harmen. Alison, Nick, and Helen updated us all on the different stages of progress on the following weeds targeted for biocontrol: *Tradescantia fluminensis*, *Aruja serficia*, *Ageratina*

riparia, and *Passiflora spp.* Landcare is using multiple agents of both fungal and insect origin to attack these weeds. This impressed me because they are not relying on the “silver bullet” biocontrol agent to take care of the problem in all areas. The varied climate of New Zealand makes this necessary, as not all biocontrol agents will establish and develop populations large enough to control weeds in all environments where they are invasive. Nick also discussed future targets for biocontrol, which include the following invasive plants: barberry, alligator weeds, japanese honeysuckle, woolly nightshade, pampas grass, and nasella. Later that day I was taken on a field trip to look at kahili ginger in the Waitakere mountains (right).



ROTORUA/TAUPO:

I left Auckland on Saturday afternoon by bus headed for Rotorua. I arrived in Rotorua about 5 pm and was immediately taken aback by the smell of sulfur in the area, and felt like I was in Hawai‘i Volcanoes National Park at Sulfur Banks. The next day I visited the Whakawerawera forest at the Maori Arts and Culture Institute. Here I saw many native plants representing many of same plant families as those found in Hawai‘i. This was very exciting and it also allowed me a chance to solidify the island connections between New Zealand and Hawai‘i by observing the native flora. On Monday, I presented my research to staff at the Environment Waikato regional office. Afterwards, we discussed areas in the region that were particularly affected by the invasion of kahili ginger. These areas were east and north of the Taupo area, mostly in the Mt. Manganui area and north towards the Coromandel Peninsula. Later that day, I was driven to different sites around the Tongariro National Forest on my way to Turangi.

WELLINGTON:

On Wednesday, November 26th, I made my way from Waikanae to Upper Hutt, where I was going to meet with staff of the Wellington Regional Council (WRC). On my way, I passed through more native forests that were reminiscent of those found in Hawai‘i. Although kahili ginger is not widespread in this region, I visited a few sites with small infestations. Later that morning, I was interviewed by a local newspaper reporter on the kahili ginger biocontrol project in Hawai‘i and the possibilities of transferring it to New Zealand. In the afternoon, I gave a presentation on the kahili ginger biocontrol project WRC staff.

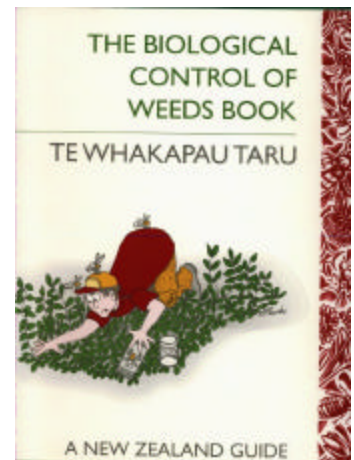
NELSON:

On Friday, November 28th, I traveled to Nelson from Picton with the help of Marlborough District Council staff. As we rode through the region, we observed different weeds such as banana passionfruit, willows, and of course kahili ginger. In this region, kahili ginger is not yet

widespread, but biosecurity officers are concerned it may be just a matter of time. In the afternoon, I gave my presentation on the kahili ginger biocontrol program in Hawai'i to a small group of about six biosecurity officers from the Tasman and Marlborough District Councils.

CONCLUSIONS:

Perhaps the best experience for me was to observe how biocontrol is perceived by scientists, managers, and the general public in New Zealand. The kiwi people understand that herbicidal control of some of the worst environmental weeds is not a long-term solution, and that control over large areas can only be achieved with the help of biological control agents. The biosecurity officers in each region have large tracts of land to manage with very few staff. They are very much interested in using biocontrol agents to help manage some of the worst weed problems. The kiwi scientists were also very helpful in offering advice on how to sell biological control strategies to people who are not exactly comfortable with the concept. A good example of is the book entitled "The Biological Control of Weeds Book" (right) published by Landcare. I was presented with this book at the end of my trip and was immediately impressed with its contents. The book is a handy reference on biocontrol strategies and concepts that can be used by both the lay person and professionals. In addition, the book has information sheets on most of the biocontrol projects currently underway in New Zealand. These sheets identify target weeds and biocontrol agents, and outlines how users may observe these biocontrol agents in the field. I think something like this could be put together in Hawai'i as a collaborative effort among the different agencies involved in biocontrol.



MAHALO!