

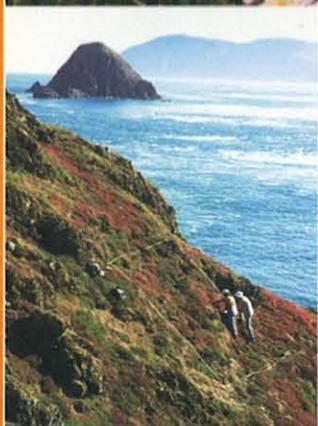
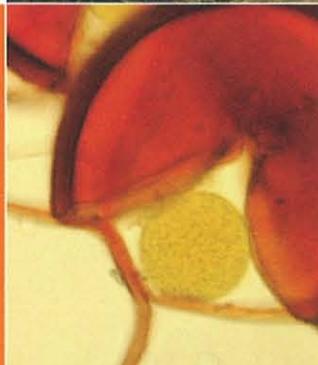
Bio-Protection & Ecology Division

Updating and Promoting a Web-Based Database of Information on 1080 and Taonga Species

by

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Updating and Promoting a Web-Based Database of Information on 1080 and Taonga Species

Final Report

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Executive Summary

1.1 Project and client

Research was undertaken for the Animal Health Board Inc. (AHB) under Contract R-80667-02 “Updating and promoting a web-based 1080 database on taonga species” by Lincoln University. This project was an extension of the 2006/07 project, (Contract R-80667-01) “Creating and publicising a web-based database of 1080 and taonga species information”.

The research was aimed at updating and expanding the current web-based database of information on 1080 impacts on non-target species, and converting it to web-based software. This was carried out between September 2007 and June 2008.

1.2 Objectives

- Reformat the database into a specific web-based programme;
- Update the current 1080 database;
- Begin to expand the scope included on the database;
- Inform Maori communities of the 1080 database and their ability to access it, through hui within Maori communities, popular science articles in Maori media, and nationally through established networks and interested individuals;
- Complete a report on this work, by 30 June 2008 (that document is this final report).

1.3 Methods

- Using the web-based software “Clone”, Aroha Miller converted the 1080 database as it stood over to Clone, including PDF files and photographs.
- A literature search was carried out to find any new publications on 1080 research on taonga species from February 2007 – February 2008 to add to the site.
- Two new sections were developed and relevant literature added.
- This has been presented to runanga representatives at Te Runanga o Ngai Tahu, Te Waipounamu House, Christchurch; at a 1080 hui with ERMA’s Nga Kaihautu advisory committee and to Ngati Kahungunu Iwi Incorporated on June 6th 2008; articles were published in Te Putara (ERMA), Kararehe Kino (Landcare Research) and in a book chapter currently in press.

1.4 Results

- Within the eight sections already in existence on the website, no new literature has been published, and so nothing new was added to the database.
- A total of 12 new references were added to two new sections – “plants” and “surface water”. Four publications were added for plants, with information on six plant species added; eight publications were added for surface water, divided into two sections, laboratory tests and field monitoring. This included one new PDF available on the website.
- Three new photographs were approved for use.
- The old web address was updated to a more user-friendly version: www.lincoln.ac.nz/1080
- Maori community feedback was positive, and the website is considered a useful tool for Maori communities.

1.5 Conclusions

- Updating the pictorial food web database and converting it to the new web-based software was done without making any significant changes to the information available on the web site.
- The database was suitable for converting to web-based software, and some navigational problems within the original format were able to be solved.
- The original database has been available to Maori communities for almost two years. The new, more user-friendly access and navigation will continue to ensure that this site plays a key role in informing Maori communities about 1080, increasing their inclusion in the use of 1080 within their communities.

1.6 Recommendations

- The Animal Health Board can consider that the 1080 database update and conversion to web-based software is now complete.
- Annual updates of the website for addition of new information as it is published should still be considered.
- As recommended in a previous report (Contract R-80667-01) consideration to further extend the database beyond the original mandate of information on non-target species, ultimately filling all the boxes in the central foodweb hub of the database, should be allowed.
- Consideration could be made to extend the database to provide information on other commonly used pesticides (e.g. brodifacoum, pindone, cyanide), to allow Maori communities the ability to compare the pesticides side by side and make informed assessments for their communities.

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Introduction

The brushtail possum (*Trichosurus vulpecula*) was first successfully introduced to New Zealand in 1858 (Clout and Eriksen 2000). Since then, it has become the primary vertebrate pest in New Zealand because of serious negative impacts on agriculture, through the spread of bovine tuberculosis to cattle and deer (Livingstone 1994). It also has detrimental impacts on indigenous forest ecosystems (Cowan 2001), including causing compositional changes in forest communities (Nugent et al. 2000), negatively affecting some native bird populations (Sadleir 2000), and predation of eggs, nestlings and adult birds (Brown et al. 1993, Innes 1995).

Sodium fluoroacetate (Compound 1080) is a key tool in the control of possums, and the most extensively used vertebrate pesticide in New Zealand (Livingstone 1994; Morgan 1994a, b; Thomas 1994; Gillies and Pierce 1999; Powlesland et al. 1999; Sherley et al. 1999; Styche and Speed 2002). The most common method of control using this pesticide is via aerial application of carrot and cereal baits coated with 1080 (Eason et al. 2000). This is a cost-effective means of reducing possum populations by more than 90% (Eason et al. 1994, Veltman and Pinder 2001).

Despite the efficiency of aerial 1080 application for reducing possum population numbers, support amongst Maori is mixed. In general, Maori oppose the use of toxins in the environment, despite the benefits to be had through the control of pests. In particular, there is much opposition around the aerial use of 1080 (Ogilvie et al. *in press*). During the recent Environmental Risk Management Authority (ERMA) reassessment of 1080, submissions from groups identifying as Maori pinpointed a lack of confidence in research carried out on 1080, and a lack of Maori involvement and consultation in 1080 research and operations (Ogilvie et al. 2007a).

To help overcome these issues, a web-based database presenting quality scientific information on 1080 non-target impacts was compiled (Contract R-80667-01; Ogilvie et al. 2007b), and made readily available and easily understood by Maori communities. Here, literature pertaining to this database was reviewed and updated; new information was added on the impacts of 1080 on waterways and plants; and the web site was converted to web-specific software, and made more easily accessible, and easy to navigate.

This is the final report describing developments of this web site, for research undertaken between August 2007 and June 2008.

Objectives

1. To convert an existing database, reported in Ogilvie et al. (2007b), to web-based software;
2. To revise and update this database with new literature published on non-target impacts since the last review;
3. To begin to expand the scope of this 1080 database by including two new sections in the web site on impacts of 1080 in the environment;
4. To promote the database to Maori communities through interested parties, popular articles and appropriate hui;
5. To complete a written report (this document is that written report).

Methods and Results

Objective 1: Convert database to web-based software

Because many Maori relate more easily to complex information presented in an holistic and pictorial format, the original database was created based on an ecological foodweb as described by Innes and Barker (1999).

However, problems encountered on the website caused by the original software prompted an upgrade of this database to web-specific software. The software “Clone” was used for this work. All information was converted over from the original software (Microsoft Power Point), including text, pictures, and PDF files. The new version (Fig. 1) is more user-friendly and easier to navigate. It includes a navigation bar on the left hand side of most pages (not shown below) to give users the choice of opening the foodweb diagram or selecting directly from the provided list.

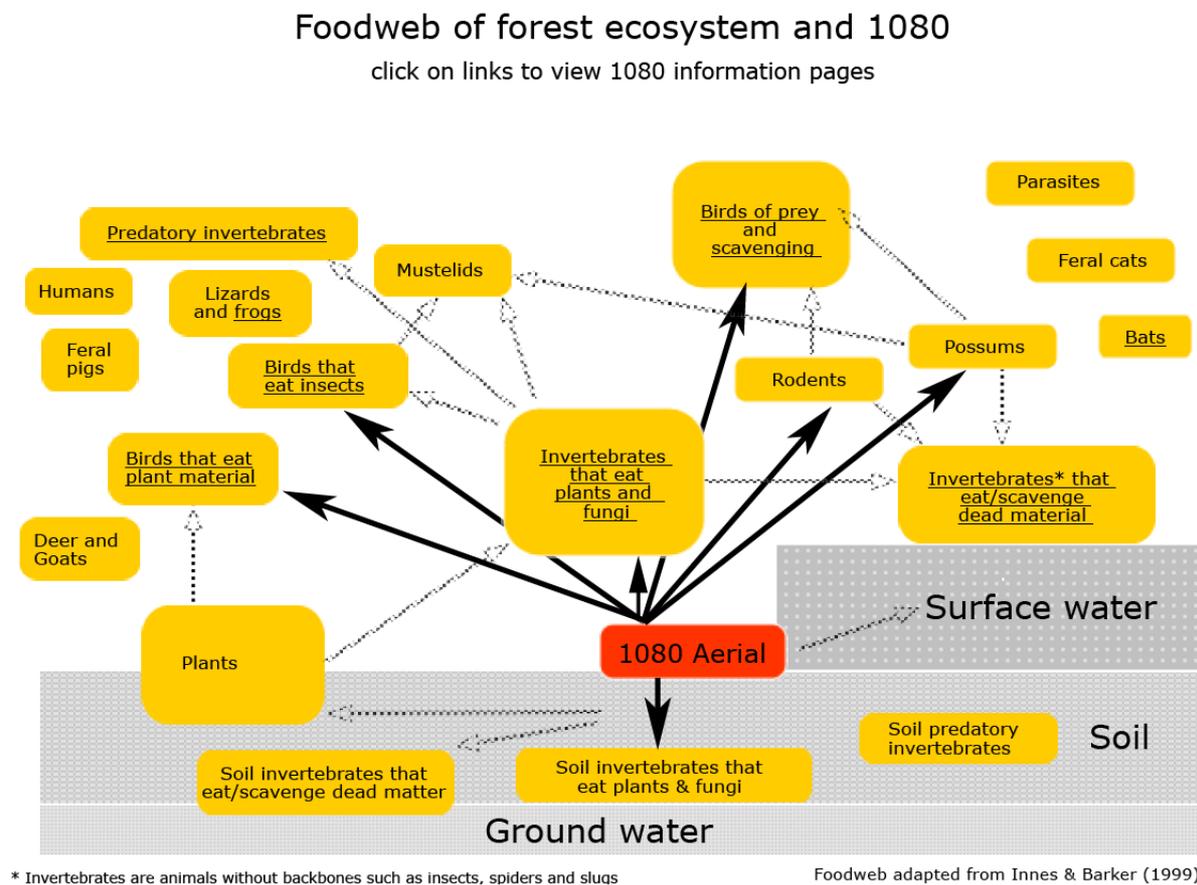


Figure 1. Foodweb representation of aerially-applied 1080 in a forest ecosystem. This foodweb forms the conceptual starting point of the database of 1080 non-target information, by allowing users to click on hyperlinks within ecosystem compartments to access information. Available at www.lincoln.ac.nz/1080.

Objective 2: Revise and update an earlier version of the database

Previous work on this database included information from over 100 published scientific articles. Here, literature published between February 2007 – February 2008 was searched for relevant information on non-target species impacts of 1080 to add to the database. No new literature containing relevant information was found within this time period.

Objective 3: Expand the scope to include new sections on the website

As seen above (Fig. 1), underlined sections in yellow indicate hyperlinks, where users can click to obtain more information on the impacts of 1080 for that specific area. Two new sections were made “live” in the most recent update – Plants and Surface Water. A total of 11 new references (Appendix 1) were added to these sections. Four publications were added for plants, containing information on six plant species. These include the native New Zealand broadleaf, ryegrass, pikopiko, karamuramu, and two aquatic plants, *Elodea canadensis* and *Myriophyllum triphyllum*. Pikopiko and karamuramu are harvested by Maori for kai (food) and rongoa (medicine) respectively.

Eight publications containing information on 1080 in surface water were included. These were divided into two sections based on the work presented in the publications - laboratory tests and field monitoring. One PDF was added to the website and is downloadable straight from the site. In this section, the information on the two aquatic plants was also included, to mitigate any confusion by end-users during navigation over use of the word “aquatic”.

Three new photographs within the two “live” sections were approved for use.

Objective 4: Promote the website to Maori communities

An updated URL has been launched on the Lincoln website. This URL is far simpler than the previous one. The URL for the website is:

www.lincoln.ac.nz/1080

Dissemination of the developments and the new URL have been publicised via inclusion of a popular article in ERMA’s publication Te Putara. A book chapter has been written and is currently in press, which discusses the website and gives the URL (Chapter title: “There’s a rumble in the jungle: 1080 – poisoning our forests or a necessary tool?” Ogilvie et al. *in press*). An update article on the new developments of the website has been included in Kararehe Kino, a Landcare Research publication. A presentation was made to Ngai Tahu runaka representatives at Te Waipounamu House, Christchurch, on April 14th during a workshop on the development of Cultural Impact Assessments (CIA’s). Information presented on the website was useful for the development of CIA’s pertaining to rabbit control operations within the iwi’s rohe. A short presentation was also made to ERMA’s Nga Kaihautu representatives at a hui on 1080. At the same time, details of the URL and the database were also given to the Board of Ngati Kahungunu Iwi incorporated, Hastings, on June 6th 2008. Both of these presentations were warmly received, and strong support was expressed regarding the usefulness of this database.

Discussion

The original motivation for producing the database was to allow Maori communities access to published scientific literature on 1080, with a focus on non-target animal species of inherent value to Maori, in a user-friendly, easily accessible medium (Ogilvie et al. 2006). Here, we converted the database into web-specific software allowing easier use and navigation; updated the information presented on the site; expanded the scope of the site; and promoted the website to Maori communities.

Building on the foundation of the original database (Ogilvie et al. 2006), important improvements have been made. By developing this site in web-specific software, operational errors have been removed, meaning more people will access, use and trust the information presented within. By constantly keeping up-to-date, and including current developments in this field when they are published, Maori communities have access to the latest scientific information, allowing them to stay informed, and actively participate in the consultation process surrounding 1080 operations.

Expanding the scope of the site to include the two new sections (plants and surface water) addresses knowledge gaps for end users. The foodweb concept shows the inter-relatedness of all organisms within the environment, including the environment itself. This holistic approach to information presentation relates well to the Maori perspective of mauri, wairua and the “inter-relatedness” of all things, and allows the larger picture of 1080 use in the environment to be seen.

Since the original inception and launch of this database, the feedback received from Maori communities has been very positive (see previous related reports). It is obvious from this feedback that a site such as this was necessary, and is fulfilling its original purpose – of empowering Maori to access research information on the impacts of 1080 on non-target species, ultimately allowing Maori to have a greater role in the appropriate use of 1080.

In summary, the database concept, available on the web, is a tool that has been readily adopted by Maori communities.

Where to from here for the database?

Since the beginning of this project, the database has grown and developed, and has now successfully achieved its original intentions. Further ideas to advance this concept could include:

- Expanding the information presented in the database until all sections (boxes) shown in figure 1 are “live”. This would involve presenting research in 14 more sections.
- Although 1080 is the only pesticide registered in New Zealand for aerial application, other pesticides are used for ground control. The incorporation of information about these pesticides would be useful, not only for making information available on their impacts on the environment and taonga species, but also for Maori communities to make comparisons between pesticides.
- As previously stated, regular updates of the website information should be undertaken, to allow the addition of new information as it is published.

The advantage of having a web-based database is that it is a living document. While it is already a very useful tool for Maori in its current state, the continued evolution and development of the site can only lead to positive improvements in community supported pest management, research and consultation with Maori.

Conclusions

- The database was converted to web-based software (Clone) without needing significant changes to the information contained within.
- Literature review and update of the database information was undertaken, but no new publications were found to add to the existing sections.
- The current scope of the database was expanded, with two new sections being made “live” – plants and surface water.
- The new URL (www.lincoln.ac.nz/1080) has been publicised in three written mediums, and via short presentations at three hui.
- The database is now available to Maori communities, and is likely to continue to play a key role in informing these communities about 1080, subsequently allowing their appropriate inclusion in the informed use of 1080.

Recommendations

- The Animal Health Board can now consider that the database has been updated to include current published information to February 2008, allowing continued access to 1080 information on non-target taonga species.
- Consideration should be made to continue to allow regular updates of the website for addition of new information as it is published.
- Consideration could be made to extend the database, ultimately filling all the boxes in the foodweb section of the database, and including information on other commonly used pesticides in New Zealand.
- Further means of information dissemination to inform Maori communities of the availability of the website should be kept in mind.

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