



LANDCARE RESEARCH
MANAAKI WENUA

**Proceedings and conclusions of a workshop on
biodiversity data sharing and sovereignty**



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Susan K Wisser, Peter Bellingham

Landcare Research

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C/- Landcare Research
PO Box 69040
Lincoln 7640

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*Landcare Research, Gerald Street, PO Box 69040, Lincoln 7640, New Zealand,
Ph +64 3 321 9999, Fax +64 3 321 9998, www.landcareresearch.co.nz*

Reviewed by:

Approved for release by:

Sarah Richardson
Research Priority Area Leader
Landcare Research

Gary Houliston
Portfolio Leader – Enhancing Biodiversity
Landcare Research

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1 Objectives

New Zealand's Biological Heritage National Science Challenge contracted Landcare Research to hold a national workshop with the aims of:

- contributing to national initiatives relating to data stewardship, with a focus on the complex issues surrounding biodiversity data collected on private land, including Māori land
- pulling together the 'best national team' to develop a proposal to the Challenge on this topic that links to other Challenge-funded efforts.

2 Results

The workshop was held on 1 March 2017. A list of participants and the full transcript of the workshop are provided in the Appendix. Following are some noteworthy highlights of the discussions.

- The biggest concern of data owners and those who believe they have biodiversity data or knowledge rights is that sharing or even meta sharing will result in loss of control over:
 - the "exclusive" knowledge (which can be associated with identity, influence and reputation)
 - the biota depicted or the land itself
 - the actual or potential flow of benefits from the biota or knowledge about its occurrence or uses
- Landowners have diverse perspectives on access to biodiversity data collected from their lands that in part reflect whether they are the data users or data providers. These include:
 - frustration over the inability to access government-held data that may be viewed by government as proprietary (e.g. mining licences allowing land exploitation)
 - the desire to know about the variety of data held by government and research institutes associated with their lands
 - when sharing data or allowing data to be collected from their lands, the desire to meaningfully engage throughout the process to enable landowners to realise knowledge gains from these data
 - concern about such data being used to underpin regulations that are divorced from a deep connection with the land and understanding of it (this is of concern to individual private landowners more than collective landowners, such as Māori groups, because the latter are more accustomed to being regulated, both internally and externally).
- Some differences in perspectives between stakeholders wanting access to data and landowners appear to be irreconcilable. Some believe non-government organisation

(NGO) environmental advocacy groups have a unique role in speaking for the environment. As such they require access to data to underpin this role. This is sometimes in direct conflict with Māori landowner perspectives that are enshrined in principles such as kaitiakitanga and have their basis in their long-standing knowledge and experience in relation to their land and its biodiversity.

- Among landowners there was a clear distinction between Māori groups and individual landowners, in that the former own land collectively, and Māori lands usually cannot be sold. This leads to a divergence in perspectives about suitable use, knowledge of and responsibility for these lands.

3 Conclusions

The workshop was successful in bringing together a range of perspectives on the issue of sharing of biodiversity data from private lands and enabling groups of individuals to interact who had not done so before. However, the goal of pulling together a team to both draft a future proposal and prepare a manuscript on the topic for publication was deemed to be unrealistic at this stage, because the overall scope is too broad to make meaningful progress.

First, the expertise required to define an appropriate pathway is varied, and both widely and diffusely distributed among individuals and organisations. We now have a better understanding of the expertise required to comprise a 'best national team' to lead both future proposals and review/policy papers. Motivating these diverse parties to engage on the topic may continue to be challenging, however, if the scope remains so broad.

Future efforts will need to ensure a good representation of data expertise that includes:

- expertise in managing large databases where data have different provenances of origin and encompass lands of different tenures
- legal expertise in data ownership issues
- expertise in New Zealand government data sharing policy
- for data associated with Māori lands and lands of interest to Māori, legal expertise regarding data ownership and the Treaty process, and social expertise regarding perspectives that are uniquely Māori.

At the same time, the stakeholders with interests in these data are also a very diverse group. Encompassing the broad range of perspectives would require representation to include those who:

- own land with associated data, including ownership:
 - by individuals or individual families
 - by corporations, including those based overseas
 - by trusts
 - collectively, by Māori groups

- collect data on private lands:
 - researchers and research organisations (Crown Research Institutes, universities)
 - government organisations
 - local and territorial authorities
 - covenanting organisations (e.g. QEII trust, Ngā Whenua Rāhui, and individual trusts such as the Banks Peninsula Conservation Trust, local Landcare groups)
 - private consultants
- would like to access data collected by others on private lands they do not own:
 - researchers and research organisations (Crown Research Institutes, universities)
 - government organisations
 - local and territorial authorities
 - covenanting organisations (e.g. QEII trust, Ngā Whenua Rāhui, and individual trusts such as the Banks Peninsula Conservation Trust, local Landcare groups)
 - private consultants
 - advocacy organisations (e.g. Forest and Bird, ECO, Federated Farmers).

Representing all these points of view in a single workshop would require a group that is very large, which could mean it would be challenging to make meaningful progress. At the March 2017 workshop we found it difficult to identify the most appropriate people to invite to represent the full range of perspectives while keeping the numbers small enough. At the same time, those with the highest level of expertise are also overcommitted with ongoing obligations and may be reluctant or unable to engage with the process. For example, four of the people who had agreed to attend the workshop withdrew the week before the workshop because higher-priority obligations arose.

In the absence of pre-existing relationships, we found it challenging to get experts to engage. For example, we felt it important to have a person with expertise in the policies enshrined in NZGOAL to attend. We identified a suitable individual, who expressed interest in phone conversations but later did not respond to repeated invitations to attend the workshop.

4 Recommendations

Workshop participants concluded that to progress understanding of the issues identified it would be best to initiate a series of smaller projects. Ideas mooted included the following.

1. A group of around five Māori hapū could discuss among themselves how best to share biodiversity data from their respective lands.
2. A particular data resource could be used to provide a case study on sharing biodiversity data collected from private lands. The National Vegetation Survey databank was suggested as appropriate for such a case study.

3. Institutions and organisations holding biodiversity data need to develop mechanisms to easily inform landowners of data holdings associated with their lands and communicate the information content of these data. This is best initiated within individual organisations, with the ultimate aim of better coordinating such information delivery across organisations. The optimal solution for landowners would be a 'one-stop shop' to readily access all the biodiversity data associated with their lands, rather than having to approach multiple organisations. The biodiversity data holdings of Landcare Research would serve as an appropriate case study to develop such a process.
4. Workshop discussions revealed that the nature of the concerns regarding data sharing is very different for collectively owned Māori lands and lands owned by individuals. It is to be expected that corporate ownership would also be associated with distinct viewpoints. Even within these three groups, the degree to which perspectives are shared as opposed to being specific to the situation and personalities of the landowners is unknown.

Hence, advancing understanding is going to require a more thorough understanding of the needs and requirements of these respective groups. Two projects that could be progressed immediately are:

- a. using the Māori data sovereignty group as a vehicle to identify the issues associated with biodiversity data collected from Māori lands and lands of concern to Māori (Melanie Mark-Shadbolt is the most suitable person to initiate such an effort, given her connection with both that group and the Biological Heritage National Science Challenge)
- b. supporting a workshop proposed by David Norton to explore issues surrounding sharing biodiversity data from private lands among the discrete group of land owners represented by Beef & Lamb NZ.

Appendix. Biodiversity data sharing & sovereignty workshop: proceedings¹

Landcare Research, Lincoln, Wednesday 1 March 2017

9.30 am – Welcomes: Holden Hohaia (Landcare Research), Susan Wiser (Landcare Research) and Andrea Byrom (on behalf of the Biological Heritage National Science Challenge)

Facilitators: Gerard Fitzgerald & Laurel Fitzgerald, Fitzgerald Applied Sociology

Participants – round robin:

Susan Wiser: Programme leader, Ecosystems & Global Change Programme, Landcare Research. Plant community ecologist, especially plants in natural ecosystems. Worked on carbon storage, and indigenous forestry. Expertise in ecological informatics and currently oversees the National Vegetation Database. In this role has been thinking about issues of data sharing, sovereignty, access and management, especially for Māori and other private landowners. Apologies from non-attenders.

Laura Young: Researcher, Pastoral Farming Ecosystems, Forestry School, University of Canterbury. Substituting for David Norton. Working on biodiversity on sheep and beef farms in NZ. Been talking with lots of farmers and can talk about their perspectives.

Peter Bellingham: Senior Scientist (Forest Ecosystems), Ecosystems & Global Change Programme, Landcare Research. Works mainly in native forests. Historical (time-series) forest and tree records are essential to his work of understanding how forests change. Through work on islands in Auckland learned about the sensitivities of data for Māori – and that these change over time.

Mita Harris, Ngāpuhi (Ngāti Toro). Māori landowner. Worked with Peter B. in Pukati Forest in Northland. Has been reading about data sovereignty and interested in learning and contributing. Aspirations for his hapū to lead by example in sustainability in the north – with a partnership with Air NZ. Volunteer working with a cluster of 5 hapū in the eastern Hokianga for economic and social development.

Maria Bargh, Te Arawa (Ngāti Kea / Ngāti Tuarā); School of Māori Studies, Victoria University. Teaching and research in electoral politics and resource management. Does some work with her hapū south of Rotorua. On hapū lands trust – learned about nitrogen limitations in farming. Hapū has a microhydro plant, home-grown food programme. Has DOC reserves on boundary – but confronted with epithermal mining exploration over their rohe.

Cath Wallace, previously Senior Lecturer in Public Policy and Public and Heterodox Economics, Victoria University; Campaigner with ECO. Long association with the east coast of the Coromandel, where her family have land with high conservation values with some farming. Concerned with conservation & sustainability, Antarctic protection. Keen to learn.

¹ These are unedited workshop minutes prepared by Gerard and Laura Fitzgerald

Phillipa Crisp, Environmental Science Department (land and territorial ecology) at Greater Wellington Regional Council. Doing biodiversity monitoring with DOC and MFE using 8 km x 8 km square grid system – involves asking to go onto private land of all types to collect data. Landowners want to know what is happening to the data and its use. Tension between data privacy and sharing through National Vegetation Database etc.

Melanie Shadbolt, Ngāti Kahungunu. Māori Research and Development Manager, Bio protection Research Centre, Lincoln University. Māori Manager at BHNSC. WAI 262 claim important in this context. Also anticipating Kahungunu settlement and return of Crown lands for which there are likely to be biological data sets in existence.

Also present occasionally:

- **Andrea Byrom**, Director of NZ Biological Heritage National Science Challenge (BHNSC) hosted at Landcare Research, Lincoln. Welcomed the participants on behalf of the NSC.
- **Holden Hohaia**, Ngāti Maru, Taranaki. GM Māori Development, Landcare Research. Background of involvement in hapū trust and iwi affairs. Brings an iwi perspective. Going through Treaty process at home. Have deep interest in public lands in the rohe which may be part of their settlement, and therefore information relating to everything on those lands.

SESSION 1

10.15 am: Scene setting: Susan Wiser – Powerpoint (recording session 1.mp3)

Aim of the workshop is to expose the wide range of issues we need to be thinking about around sharing of biodiversity data relating to private lands, in particular Māori land.

National Vegetation Survey Databank (NVSD) records: most data relates to public conservation land – increasingly being repatriated to Māori owners. Have protocols for data use, including from the data providers and/or landowner.

HH – does NVSD include data from Maori land? NVSD has heaps of plots and data points on Māori land (e.g. Te Urewera, which from the 1930s had a large forest data gathering infrastructure – and now the land is back in formal Tuhoi ownership and management). Also data from the SILNA lands. From 1940s and 50s the National Forests Survey gathered data from wherever it wanted to go, under free access. Big areas under Ngāti Maniopoto, Ngāti Awa and central plateau. It represents the historical record. More recently there are the studies of carbon stocks under the Land Use Carbon Accounting System (LUCAS), which is based on a network of data gathering/sampling sites from within the system of 8 km x 8 km grids covering the whole nation's forests and shrub lands. This programme had to seek access to Māori lands by going through a due process, and began in the early 2000s & is continuing today. Initially it was difficult to get the survey going in Northland, but the situation is improving. The LUCAS data has levels of approval for access. Permission to access some data must be sought from Māori and other private owners, and some find that

too hard. Peter B. also noted that the value of the data gathered from a single sampling point will depend on what its use is. For a Māori landowner, it may be very valuable for monitoring their own forest.

Move internationally to share data (e.g. the *Global Biodiversity Information Facility* (GBIF)), which records the occurrence of species by location and time. Includes herbarium data. NZ and the LR herbarium provide public data into that. The SPLOT database is trying to accumulate plot data from around the world. SPLOT has access rules. Only a small amount of data from the NVSD has been provided to that so far as a trial.

Phillipa S – where is the push to share data coming from?

A lot is coming from global scale studies. Eg. SPLOT wants to link species occurrence and trait information (esp re plants) across the globe.

MB – any economic drivers? Eg companies wanting to exploit the resource?

Not yet – more academic use – wanting to inform thinking on global environmental policy. *PB* – Certainly the case with GBIF (Global Biodiversity Information Facility) which is closely aligned with international forums such as the International Panel on Biodiversity and Ecosystem Services. Less academic than some databases. GBIF is used to identify and bring global attention to biodiversity hotspots – eg redirecting international aid efforts to protect highly valuable areas, where mobilising the most easily accessible information is important.

Other kinds of data portals are developing internationally. There is a lot of spatial bias in GBIF and SPLOT because it reflects where they are able to source data from.

Another driver to share biodiversity data in NZ is government policy, e.g. NZ GOAL (Government Open Access Licencing Framework) – intended to make all government department data freely available. It acknowledges issues around personal privacy, and has exemptions for protecting privileged knowledge (eg Māori). Universities and CRIs are except from NZ GOAL, but are encouraged to make data available.

CW: NZ Govt has signed up to the Open Government Partnership – a multilateral agreement, run from State Services Commission. ECO is keen on open government, but many government agencies won't provide info requiring those asking for it to specifically reference the OIA, which should not be required since it automatically applies to all requests for official information.

Government's new Environmental Reporting Act now requires sound data for the SOE reporting by MFE and Stats NZ. *PB* – however, reporting has been forced to use surrogate data because (apart from GWRC) there is no systematic data gathering across private land in NZ. Reporting therefore is biased towards public land.

Scientific journals are increasingly requiring science researchers to make the aggregated data on which the paper is based available before they will accept it. They don't require you to make the unprocessed raw data available. This runs counter to agreements with some parties that data not be on-supplied to others. *The drivers are?* Being able to validate scientific studies, being able to use the data for other studies; e.g. larger-scale analyses,

‘public’ right of others to use data gathered using public funds (as per the European union), and as a guard against ‘scientific fraud’.

A further demand to share data comes from the need for biodiversity database managers to demonstrate their worth by maximising their use (e.g. NVS).

HH comment: recently he asked for a summary of the data on all the NVS plots in the Ngāti Maru rohe, including DOC land.

SW noted that the existence and location of plots can be freely provided, but to get the information on what is in those plots requires going through a formal set of protocols including checking with whoever collected that data. If it relates to your own land, you should know about the data anyway ...

Issues in the literature

There are also arguments that scientists should share data because it is good for the wider scientific community and scientific endeavour generally. But it isn't necessarily in the individual scientist's own career interest to share their data. Also, field data collectors may be penalised if they have to share it immediately and others grab it and use it for their own interests. Relates to co-authorship of papers, etc. Also are concerns that those mining others' data sets may not understand the data and come to weird conclusions based on it (e.g. a recent global study on bark thickness that misused NZ data from GBIF).

Noted that in the international literature on data sovereignty and sharing there are no papers on indigenous people's rights to biodiversity data. Cath W. noted that IUCN has done a lot of work on it and it's a live talking point in the general assembly. Mel noted 'Aroha' (?) & Tui Shortland, have also done work, but have tended to publish on health data rights. Peter B: Even organisations that have a long track record of work in this area (e.g. in Canada) do not appear to have published internationally. Discussion on indigenous people's data rights needs to appear in *Science* and *Nature*. Susan noted that it does not even appear in the journal policy statements.

Issues around sensitive data such as rare and threatened species (and personal information). Questions around who benefits from sharing biodiversity data – e.g. bioprospecting.

Biases in data sets because of challenges of doing research on private vs public lands. Cath W. noted the terrestrial bias vs marine biodiversity. Elsewhere there are other drivers (e.g. Antarctic research and requirement for data sharing in order to verify compliance with Antarctic Treaty).

BHNSC recognises that it's important to gather data relating to all lands in NZ, but there can be difficulties in collecting and using data from private lands. Susan can find no literature covering issues and requirements around data sourced from private lands (refer to CW's own questions :

- Who owns data sourced from private lands?

- What are the issues for different types of data (e.g. a specimen vs a table of data from the 1940s; data collected from remote sensing)?
- Do the landowners know about the data from their lands? Should they?
- What happens when land tenure changes?
- Is such data covered in Treaty settlements?
- Who benefits from the information from the data?
- What kinds of data exist?

Discussion:

Andrea B.: re drivers for sharing – data modellers are also wanting access to multiple big data sets to tackle ‘wild problems’.

Cath W.: Conservation groups (and business community) also want access to data. Refer to Kiwicare survey of kiwi. ECO and other ENGOs also want access to recognise and tackle environmental challenges.

Peter B: also the ‘audit culture’; funders want evidence to show the outcome from their spending.

11.15am - Exploring data sharing and sovereignty examples (GF and SW)

Brainstorm and discussion of examples of data-sharing situations (developed by Susan)

Example: Sharing national level data

Biodiversity data collected from different sources has been combined with other data and repurposed for synthetic research at both national and global scales.

National examples include:

- a) predicting where different native tree species can grow*
- b) estimated baseline carbon storage (1990) to support Kyoto obligations*
- c) producing national-scale classifications of NZ native vegetation.*

Examples of global studies to which NZ has contributed data include:

- a) improving the estimate of the number of trees in the world*
- b) demonstrating that forest productivity is usually positively related to the number of tree species in a stand*
- c) showing that large trees are disproportionately important in accumulating carbon in natural forest stands.*

Government & Councils

Perspectives

Reductionist – Government and Councils work under the RMA and are chiefly concerned about policy, rules, and need data for strategising, prioritising, and monitoring; key foci are biodiversity changes and hazards (e.g. pests, weed control), firefighting, ecological restoration, biosecurity, environmental management. Central government supportive of biodiversity data sharing for their own interest (e.g. MfE) but don't contribute to data gathering.

Issues and challenges

Councils in particular tend to focus (almost exclusively) on local and regional issues (e.g. a single area or species) rather than national context and issues; tend to be indifferent to national interests re data sharing and access. Local (vs regional) government have no resources and little interest in biodiversity monitoring. Ratepayers won't pay. Means data gaps in local government areas.

Most NGOs are local and/or specific in focus so tend to be indifferent to national-level questions and sharing of data nationally.

In central government generally funding is a major issue – tensions, compromises, concessions; significant ideas are articulated but not necessarily followed through. MfE has big goals and focus, but its ability to influence or achieve these, apart from the carbon accounting programme, is negligible because they choose not to put money into it. Hence it is not a significant player in biodiversity monitoring & protection, though it has statutory responsibilities in state of the environment reporting. It chooses to report on Paris Accord progress (climate change & carbon) because it is economic, and it is required under NZ's reporting obligations, but MfE is not investing in reporting on progress on Convention on Biodiversity (CBD) because it is treated as 'discretionary'.

Regional governments have varying policies on data sharing and charging (e.g. with ECO in its efforts to get a geodatabase of biodiversity) – from commercially based data use agreements through to cost recovery and open access. Often there are landowner /data supplier restrictions and limitations on access, even for public interest groups. Data use agreements purport to prevent the user (e.g. ECO) being able to put information derived from the data on the internet (e.g. in the form of a GIS). These agreements also specify that the council will own any benefit that the user derives from the use of the data. These seem to violate the principle of open government.

Opportunities

Projects that have strong and explicit drivers/motivation for a collective endeavour (e.g. EMAR, Open Government Partnerships, and Whole Farm Management). There is a need for both extrinsic and intrinsic motivation; need for research on data access.

Opportunity for development of a pan-regional council (and even local council) data gathering and sharing efforts – for use in resource consenting, monitoring, etc. Would help

lower the transaction costs. There is some progress on coordination of effort at the regional council level – e.g. in development of a standard set of indicators, lists of threatened species.

May be an opportunity in providing the means by which councils can compare their progress in biodiversity protection – for league tables, and in identifying gaps in data coverage.

One area where this is happening is in water with the LAWA (Land, Air, and Water Aotearoa) website www.lawa.org.nz, where council water quality data is lodged. Biodiversity data is not being included yet because councils are unclear as to their responsibilities in biodiversity management. EMR area relating to biodiversity is inactive. Waiting for a paper by Gerard Willis.

There is an opportunity to hold the government to account for its international obligations.

Laura Y: Desire from sector groups to get biodiversity into whole farm management plans – to check own performance, etc – both intrinsic and extrinsic motivation. Farmers in Canterbury are keen to do this themselves rather than wait and be required to do it.

Māori and iwi

Perspectives

Māori are guardians and protectors of the land and biodiversity, sense of intimate connection/belonging to the land (kaitiakitanga). Imperative of having appropriate protocols regarding biodiversity data management, respectful consultation regarding mātauranga Māori, data sovereignty, data sharing, and follow-ups and outcomes etc.

Generally cautious. Getting some economic benefit/development from biodiversity, and its protection is a big thing for hapū and iwi. Data interest is at local scale – such as for whānau or hapū land, and possibly across an iwi.

Maria B.: There is interest in national-scale biodiversity data among Māori organisations – e.g. iwi chairs forum, which is interested in information around water quality, climate change. In Maria's home area they are interested in data on Māori land use, especially in relation to limiting nitrogen runoff into Rotorua Lake. Māori Land Online provides some data (c/- LCR and Garth Harmsworth). Also MBIE is supplying information, and the Māori trustee (for managed land) representing managed properties all over NZ. Not sure what data FOMA has.

Maria's iwi is also part of Treaty settlement/signatories re Waikato riparian management, and they have an MOU with DOC, who provide and receive information. Found that government has data and has shared it with commercial mining interests, and iwi has no sovereignty over that data, and weren't made aware of it being shared with others (in relation to the 'block offers').

If approached, Maria's marae committee would probably agree to data relating to their land being used in a global- or national-level study. Recent example of a CRI doing research on awhito – a moth found in the area and once used to make moku dye – and the taking of

samples – but never heard anything back, or info on what happened. Lots of marae committees would probably agree/cooperate, but lack clear agreements and transparency about protections. Ref to WAI 262 and recommendations on protocols etc.

In tikanga Māori framework, the species cannot be separated from the mātauranga about it. And Government has a fiduciary responsibility to protect Māori knowledge.

Mita H.: His people would be a lot more suspicious if approached to share data (reference to pillaging of local forest resources in past). Focus is on developing a good partnership first. Rongo/medicine species especially sensitive.

Accessing of other sorts of data can be especially sensitive and contentious in the context of Treaty settlements (e.g. boundaries and ownership of resources within them).

Peter B.: Increasingly there is potential for a species to have its complete genome mapped and the information lodged on GenBank. For Māori, effectively exposing the mauri/essential nature of a species is perhaps very problematic (reference to harakeke).

Maria B. & Mel: Key issue is control over the knowledge – because it has economic value (or potential) and cultural value. Wai 262 is about protecting future value (e.g. mānuka was once valueless; now knowing where it is is valuable information).

Cath W.: Sometimes having access to data about a particular species (and its genome) that has cultural value may be essential for its protection/recovery elsewhere.

Issues and Challenges

- Insufficient recognition of/respect for the kaitiakitanga role and long-standing knowledge and experience of Māori in relation to the land and biodiversity. Also among Māori (e.g. forest in the rohe, but 'belonging to DOC, being just a place to exploit).
- Pākehā ignorance of kaupapa protocols (e.g. poor consultation and communication); clash between science and Māori agendas.
- Ongoing colonialism and the exploitation of cultural and economic resources (e.g. mining).
- Lack of iwi access to relevant data; ministers and other people of influence.
- Programme/project issues (a lack transparency, poorly defined rationales, programme and policy changes).
- Concerns re loss of control over the land as well as biodiversity information.
- Perceived lack of influence when it comes to decision-making (objections are often disregarded or over-ridden and data sovereignty not protected).
- Lack of manpower, time, resources and expertise for some iwi, and members who may be more interested in pursuing pig hunting, pigeon shooting and dope growing on the land.

- Māori often portrayed and perceived as ‘disruptive’ or ‘precious’ when they object to certain developments.
- Iwi concern re the ‘unknown’ – shifting priorities, further exploitation, etc.

Opportunities:

Relate to a shifting paradigm of meaningful engagement – and creating opportunities for Māori in the regions. Includes training and employment of locals in biodiversity data gathering etc. (e.g. in vegetation monitoring in Puketi Forest in Northland).

Future planning/mapping and the sustainable economic use of biodiversity. Economic development opportunities for Māori. Data important for identifying opportunities.

Opportunities for co-governance, partnerships in biodiversity protection, and sharing of data to achieve this; the regeneration of biodiversity (e.g. regeneration of specific interlinked areas and species and riparian planting) and the diversification of land use (e.g. the design and manufacture of a muka clothing range; the possibilities of local/hāpu involvement, training and employment around gathering data/monitoring, government investment and social and economic development).

Private land owners/managers

Perspectives

There is a diverse range of attitudes, views and values, given that this broad category incorporates different ‘types’ of landowners: inter-generational landowners, urban landowners, foreign and multi-national corporations, etc. There are also land managers (not necessarily owners) taking day-to-day decisions with management priorities.

Private landowners tend to be interested in data relating to change – changes in relation to their own land, and what they do on the land. Commonly conceptualise land as private and individually owned and data as ‘property’ (the default position may be to restrict access to information /data, especially if it is perceived to be linked to economic benefit), different positions on social approval or disapproval.

Private landowners tend to be concerned for their property rights and autonomy. Wish to maintain control over their land and what they do on the land, yet at the same time can be intrinsically motivated to protect biodiversity.

Issues and Challenges

These landowners worry about data being used to formulate regulations that restrict their rights; e.g. a wetland, rare plant, etc. Worried that ‘naive’ information or data sharing especially around rare and endangered species. Susan outlined their protective procedures with GBIF etc, and the release of information.

Peter B. noted that data can be repurposed in the future. Easy access to biodiversity data on a person’s land can cause economic loss, poaching, and a loss of privacy and control.

Concern about bureaucracy and restrictive regulations; tensions with councils (e.g. over inspections, regulations and rezoning/shifting policies, etc.

Cath outlined the various informational and regulatory challenges associated with her family conservation land on the Coromandel. The family has conservation goals and is happy to have an ecological assessment done, but others she knows complained that they faced increased regulation based on landscape and ecological assessments. It is about autonomy, self-determination, respecting local knowledge, intergenerational experience of the land. Local Kiwicare group refused to publish maps of kiwi location; also applies to rare plants and lizards. Susan noted that the NVS databank does not make location data for vegetation plots containing rare plants publically available.

Mita also noted that from direct experience farmers can also have destructive and dismissive attitudes and behaviours to local biodiversity and need to be regulated!

Māori also don't like interference in their own property affairs, but if they resist information gathering etc. they are deemed to be stroppy or precious etc.

For Māori landowners, land/landscape regulation is just another regulation they are forced to deal with. For others, it is novel.

Scientists and researchers have difficulty knowing who to ask and locating them when it comes to trying to access corporate or foreign-owned land for research/monitoring. They can also be very sensitive about regulation.

Agencies (e.g. LINZ) sometime have privacy provisions in the use of databases which the user has to sign up to. NZ doesn't have a really good land use GIS layer because of privacy issues – and the Agribase is not adequate. Farmers say they already give farm information to MfE, StatsNZ – but the agencies won't provide the information to councils for biodiversity monitoring etc.

Opportunities around Data sharing, etc

- For ecological assessments and partnerships with regional councils, iwi etc.
- For official recognition of significant ecosystems and species (viewed negatively by some landowners).
- Improvements in land use, production, unique marketing possibilities etc.
- Local information on location of biodiversity can translate to increased property value.
- To create incentives, wider recognition, and for attitude shifting.
- Leading by example (e.g. LandCorp and the protection of wetlands, gullies, etc).
- Contributing to regional and national databases, modelling, and wider decision-making.
- Being part of a 'shifting paradigm'.

Lunch break

1.30pm - Exploring Data Sharing and Sovereignty – *examples of use of private land owner data*

1) Honey industry: validating genetic provenance claims.

Many landowners are producing honey from native plants, especially mānuka. Some landowners want to be able to tell the story that their honey has a unique genetic provenance associated with the location. To tell this story, the landowners need to be willing to share the genetic provenance data.

2) Native timber from a specific species: is the resource large enough to support an industry?

An iwi has substantial stands of timber from a specific tree species on their lands. Traditionally, it has been difficult to develop a market for this timber because the resource is either too small or underutilised. Pre-existing data was used to estimate the size of the resource nationally and to determine (i) where this resource is located; (ii) how much of this resource is located on private lands that could be managed for timber production; and (iii) how much of this resource is located on Māori lands. The conclusion was that the stronghold for this resource is on the lands of the iwi that initiated the study. This means that if a market is to be developed, this iwi will have to be the primary driver: there is little opportunity for a consortium of iwi to pool their resources to develop a market. This study required access to pre-existing data from lands of different tenure and owned by different groups of people

3) Estimating carbon accumulation

Landowners may be interested in allowing shrublands to revert to indigenous forest to obtain carbon credits under the Emissions Trading Scheme. Landowners are required to collect data from their lands in a standard way. They then submit this data to MPI and MPI calculates the carbon sequestration rates and the carbon credits for which the landowner is eligible. The carbon sequestration models that MPI uses are based on data on tree growth, recruitment and mortality rates from throughout New Zealand. These can be improved as more data becomes available from different environments throughout NZ.

Scientists and other researchers

Perspectives

Vary enormously, given the range of scientific/research interests and approaches, but typically aim to access as much high-quality data as possible that is relevant to their area of investigation and with good contextual information. In the case of case 2 above (mānuka), also need information not only on distribution but also on the essential biochemistry of the plant, its reproductive capacity, residence time in a spot, etc. Also need information on mānuka from everywhere else in the country to be able to demonstrate genetic uniqueness.

Keen to limit bias (e.g. public land plus private land), estimate risk, develop an appreciation for the context, and gauge the utility of the data from an economic view.

Challenges

Uncertainty of the context is a factor. Challenge for scientists is to have best data set possible.

If the research is economically driven, commercial confidentiality can place limits on publishing the material, limits on where it can be published, but this is only a challenge for some scientists. Limits depend on who is paying for the work. If MBIE, there are contractual requirements over access to intellectual property (IP), but there can be special arrangements if necessary. Reference to cultural safety agreements in case where public funded research involves tangata whenua, and MBIE has not yet objected. MBIE tends to default to the position and arrangements of the particular institution.

Commercial research IP causes tensions because scientists are under pressure to present and publish their research publically (in journals, etc). Commercial research can be a bad career move; scientists tend to balance the competing demands by carrying on as if nothing is happening and hope for the best. Sooner or later, due to career pressure to publish in the best journals, they are going to face the requirement to make available data over which Māori claim sovereignty. Journals are going to have to face the cultural realities of this country regarding research data. A clash is on the way (reference to gene sequencing of taonga species such as tuatara, kiwi).

Observing research ethics in NZ puts local scientists at a disadvantage in competition with researchers from other countries that have easier or fewer ethical, methodological, and publishing requirements; Māori scientists struggle to balance the demands of science field & publishing, and cultural demands.

Initial and ongoing funding and institutional support.

Competing demands (time, the length of a project, cost-recovery, the varying interests and agendas of the parties involved, being able to commit to long-term/absolute IP guarantees to private landowners, iwi and the like.

Gaining access to 'experts' to testify in relation to environmental law issues.

The influence of 'big business' and multi-nationals on government priorities and funding: causes institutional bias in research organisation and a lack of academic freedom.

Opportunities:

To develop guidelines around ethical data use in NZ and make the science world aware of them and the limitations they impose on data access. Also to encourage journals to develop culturally sensitive and safe protocols & practices.

Re the mānuka honey provenancing by iwi: the opportunity can only be realised if data is shared between the iwi. What are the costs /loss of benefits of not sharing the data?

Other comments relating to the example:

Discussion about value of carbon credits can change at the whim of government at its ETS, and if it in the interests of Māori landowners to supply such data.

In RMA processes, communities cannot access the nation's scientists because the scientists are engaged in work that is funded by the very interests/industry that is being challenged by the community. Hence NIWA scientists don't have intellectual freedom. The heavy involvement of industry (e.g. fishing) also determines what research gets done and the questions that get investigated (vs public good questions & research).

Individual Private Property Owners

Perspectives:

The notion of private business and private ownership influences one's economic decisions and decisions about data. 'I own it'. In the NZ legal system, private property rights are protected. Data is property, and the inclination is to restrict its availability in order to protect its economic value, and to support autonomy and privacy.

In contrast, those who want to protect the indigenous biodiversity involved in case 2 want to gain access to the data.

Māori owners have different senses of ownership of land from non-Māori, and a different set of 'legal' principles.

Challenges

There are changes in the social licence to 'operate' (e.g. harvesting of native forest). The social context of property has changed.

The challenge to owners of indigenous forests is that they must get a sustainable management licence, which involves disclosure of data at least to MPI, and in the case of FSC certification, to the public (at least in part). The main problem for private owners is the economics of low-level indigenous forest harvesting.

Opportunities

FSC NZ is putting all of the certified forests onto a single map etc. for NZ. It is possible to assemble other data layers for these. In theory FSC allows for stakeholders to check on forest management through FSC databases.

2.15 pm – Biodiversity data of interest and concern – ‘What kinds of sensitivity are there for what kind of data and data sharing?’

Location of individual organisms – e.g. largest tree (mātauranga Māori), rare and iconic species, things that might be poached.

Intentional or unintentional trespass; e.g. when people stray onto private/iwi land without permission to access data. Data sovereignty and sharing issues arising. Mita: wāhi tapu areas and resources and materials within them – for some Māori there are things that are so sensitive one can't even say why they are sensitive. Might inform people of 'a no go area'. Naivety by a scientist is forgivable, but knowing an area is sensitive 'is a game changer'. 'Naïve' collection of data from a sensitivity area does not necessarily mean data cannot be recorded or used. Limits to sharing, and extent of sharing depends on relationship and existence of trust.

Mel example: scientists trespass on Māori land to collect samples for genetic testing, and fail, after reprimand and apology, to stop the testing and data analysis, and return the material to where it was collected from. If breach is discovered after the analysis, the person should go back to the landowner whānau and ask them what should happen next.

Identifying who to ask for access. If Māori, start with someone you know from the area concerned.

Scientists must think about how a data point gets to be that data point? Ref to sequencing an insect and inability to return material after testing. Not understood by the Māori landowner. Who owns the sequence?

Different sensitivities between research and data on introduced (and pest) species vs native species. Landowners don't appear to be sensitive about studies of pests, etc. Māori may be concerned about what the data might be used for (e.g. if pest studies lead to introduction of biocontrols based on introduced organisms or GMOs or other new technologies).

Sensitivities around data use are around public perceptions of scientists and the way they access and use data; i.e. trust in what research and why?

Remote sensing data (satellites, drones, etc): some Māori have concerns around drone use, others don't. Generally satellite data is easily available if you can afford to pay. For Māori the issue is not how the data is collected but who is collecting the data, for what purpose, and who is in control of it? Remote sensing data gets used because of difficulty in getting access to collected data on the ground, and by default gets used for policy making and setting protections for areas.

Maria: all these things come back to having a set of principles – from the Treaty of Waitangi. Provides a steer to CRIs. See Ko Aotearoa Tenei report. Ref to BOP guidelines and FPIC.

Cath: Who speaks for the environment itself, vs humans and their rights?

Protecting/maintaining natural environment and ecosystems requires access to data?

Obligations and responsibilities to the environment by everyone? Rights of the environment are not enshrined anywhere. Maria: no obligation for Māori to share mātauranga.

Issues around Citizen Science – researchers’ access to private land, the protection of some areas and species, the role of citizen scientists who act as ‘gate keepers’ of important places and bodies of information/data. Some citizen science data sets are easily available, much is not. How can it be made available? Cavers won’t share data on cave biodiversity with DOC. Ref to some of data on Garden Bird Survey. OSNZ etc won’t share data if there is potentially a danger to the species/organism themselves.

Issues relating to rare species: legal protections for rare species etc. can act as a disincentive for farmers to provide property access, share data, etc.

Issues relating to access to biodiversity data:

- When should total or partial restrictions apply?
- Should government and other ‘regulators’ have automatic access to information/data?
- Should government and other regulators be able to control access?
- What are the consequences of sharing or restricting access to biodiversity data?

Potentially valuable and expensive data for NZ biodiversity management/protection is locked up in researchers’ cabinets for a wide range of reasons, including potential complications from reusing or repurposing it.

Gerard: Summary of sensitivities:

- Where the biodiversity/ecosystem/species would be put in danger if information is made available.
- Where there are tapu things/places.
- Where the data relates to mātauranga Māori.
- Where sharing the data might result in interference in farming etc, greater regulation, loss of control or autonomy.
- Where the data might be repurposed in the future.
- Where data security can’t be guaranteed.
- Commercially valuable information.
- Data and information that provides career advantages to scientists/researchers.
- Professional ethics.
- Amount of work required to get sign-off from those in a position of authority to share data.
- DNA information seems to be especially sensitive.

Break. Maria & Mel leave.

Holden returns

3.30pm – Project positioning: Next steps, possibilities for project and publication? (SW)

- Need to split up issues for discussion or a paper.
- Lots of issues and lots of subsets of interests. Sub-discussions to be had separately. Use NVS system as a case study.
- Form subgroups to focus on different aspects of interest and expertise, before coming together again.
- Get Māori Data Sovereignty Group engaged in this issue.
- Connect with individuals who were invited but unable to attend this hui.
- If wanting to engage with Māori and other communities, LR need to make the question of data ownership and control part of and relevant to a local project (e.g. pest control, and local biodiversity protection).
- Demonstrating the economic utility of historical data sets is important (e.g. in Treaty settlement, could be a useful project and a way of getting at the issues). Case study suggestion ('learn by doing'): mobilise around this case study and engage in a practical hui exercise with Ngā Puhī. Acknowledge historical data, adhere to Treaty of Waitangi principles, and make the CS 'explicitly economic'.
- Redesign surveys that are culturally insensitive.
- Involve councils and NGOs (Federated Farmers, Forest Owners Association & Farm Foresters, QEII Trust (who have data confidentiality requirements), Forest and Bird, groups on NPS?) in data sharing conversation. NPOS data access is crucial.
- Consider the project's relationship to the Sustainability Dashboard Group and the indicators for different environmental conditions on productive land. Overlaps with other projects and initiatives (e.g. Sustainability dashboard: <http://www.nzdashboard.org.nz/>)
- Presentation to National Policy Statement group on biodiversity (ref to Tina Porou).
- Consider engaging with the Open Government Initiative – through the SSC.
- Develop a summary for the challenge, with clearer links to Susan's key questions (see PowerPoint).
- Make stronger and clearer links between data availability and sharing, and the issue of the decline of biological heritage (the NSC goal). Implications for the institutional arrangements.
- Consider more practical issues/possibilities, including access to resources, size/ scope. Time/availability, the involvement of diverse groups, the mechanisms for involving groups, the development of protocols, links to kaupapa Māori and Treaty of Waitangi principles. Cost of databases.
- Consider how the data can be shared for the 'public good', and for the environment's good.
- Focus on the topic 'Implications of Data Sharing' for the challenge (What are the implications of sharing information? What are the costs and benefits?) Implications of not sharing.

- Link remote and on-the-ground data to obtain a richer description
- Focus on the unique: consider issues relating to naming/branding, differentiating, intellectual property (honey example). How to certify origin through audit and chain of custody.
- Consider whether the rights of indigenous people re the sharing of biodiversity data equates to a gap in current research. If so, what are Māori perspectives on what should be taking place?
- Consider presenting and publishing possibilities – journals, etc.
- Share contact details via email, network, and ‘carry the conversation out’.

4.15pm – Farewells/Poroporoaki .