

# Dataversity National Workshop Report

Dan Randow, Dataversity Facilitator, 7 April 2009.

## 1 Introduction

On 19 and 20 March 2009, a national Dataversity workshop was held in Wellington. This workshop was part of the TFBIS<sup>1</sup>-funded Dataversity project that aims to increase coordination of efforts around the management of biodiversity data in local government. This document aims to support further work in the Dataversity community, by documenting some of the outputs of the workshop.

### 1.1 Summary

The workshop attracted 26 participants, of whom 18 were from local government. Five regional councils, two territorial councils and two unitary authorities were represented. Representatives from DoC, TFBIS, Landcare Research, SSC, MoRST and Cawthron also participated.

Participants reported that the most valuable aspects of the workshop were the opportunities that it provided to build relationships and to learn about the biodata management work being done in other organisations.

Despite the many challenges that exist, many participants were encouraged by the progress that has been made in local government biodiversity data management in the last five years. A variety of biodata systems and practices were demonstrated, almost all with the potential to be shared by multiple organisations.

Participants identified a number of opportunities to increase the collaboration around biodata management. Many of these were small and easily actioned. Initial plans were made to exploit more significant opportunities, such as working towards a shared taxonomy for species and habitats, and shared approaches to prioritisation and data quality management. Participants also explored opportunities to improve inter-agency data-sharing, to catalogue existing systems and to collaborate on building systems.

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1 The Terrestrial and Freshwater Biodiversity Information System programme.

## 2 Participants

The participants and organisations represented at the workshop were as follows.

### Non-Government

- Cawthron — Paul Barter

### Central Government

- Department of Conservation — Lynnette Hartley
- Department of Conservation — Shirley Vollweiler
- MoRST — Isabella Cawthorn
- State Services Commission — Liz Kolster
- TFBIS — Alan White
- TFBIS — Susie James

### CRI

- Landcare Research — Jerry Cooper

### Regional Councils

- Environment Bay of Plenty — Heather MacKenzie
- Environment Bay of Plenty — Jim Fretwell
- Environment Canterbury — Philip Grove
- Environment Waikato — Jim McLeod
- Environment Waikato — Ryan Clark
- Environment Waikato — Yanbin Deng
- Greater Wellington Regional Council — Bruce Brewer
- Greater Wellington Regional Council — Henri Heyns
- Greater Wellington Regional Council — Owen Spearpoint
- Greater Wellington Regional Council — Pedro Jensen
- Greater Wellington Regional Council — Philippa Crisp
- Greater Wellington Regional Council — Sara Moylan
- Horizons — James Lambie

### Territorial Local Authorities and Unitary Authorities

- Christchurch City Council — Liz Garson
- Masterton District Council — Katie Underwood
- Nelson City Council — Paul Fisher
- Tasman District Council — Kay Anderson
- Tasman District Council — Lindsay Vaughan

### 3 Opportunities Identified

At the workshop, participants identified opportunities to collaborate on improving biodiversity data management in local government. Some of the opportunities require only simple actions. These are listed below as “Just Do It” opportunities. Other opportunities require medium to long term planning and action. These are described more fully in the subsequent sections.

Many of the names associated with the following opportunities are suggested only, and do not imply commitment to take action.

#### 3.1 “Just Do It” Opportunities

- Coordinate overlaps between LCDB3, DoC's habitat descriptor project and Landcare Research's (Daniel Rutledge) land-use classification project, and report back to Dataversity.
  - Isabella Cawthorn.
- Report to Dataversity on progress with MoRST's review of Nationally Significant Databases.
  - Isabella Cawthorn.
- Discussion to identify gaps in the Nationally Significant Databases.
  - Dataversity members.
- Report to Dataversity on plans and progress with DoC's species web service.
  - Shirley Vollweiler.
- Report to Dataversity on ETA for external access to DoC's Natural Heritage Inventory and Monitoring toolbox.
  - Shirley Vollweiler or Lynette Hartley.
- Report to Dataversity on plans for easier external access to BIOWEB.
  - Shirley Vollweiler or Lynette Hartley.
- Provide taxa keys for ecologists (invertebrates, plants).
  - Landcare Research? TFBIS?
- Build strategy for collaborative solution-finding between government levels-via science.
  - Isabella Cawthorn. All, via Dataversity.
- Consider adopting national systems, especially those with stand-alone editions, such as FBIS/CADDIS-Fly and NVS Lite.
- Consider adopting Horizons' ecoBase, EBoP/s system, or ARC's EcoBase.
- Develop a Biodiversity database for Greater Wellington Regional Council
  - Pedro, Phillipa, Tim Porteous, Amber Bill (WCC).

- Put together a simple Access database to store and analyse bait station trends.
  - Bruce Brewer, Henri Heynes.
- Form an SAP integration interest group within Dataversity.
  - Mike Mc Murtry, Jim Lambie, Liz Garson, someone from GWRC.
- Form a PDA/Datalogger interest group within Dataversity.
  - Shirley Vollweiler, others?
- Foster links identified during the workshop back in own patch.
  - All.
- Leverage the online Biodiversity community to continue discussions outside of these workshops.
  - All.
- Engage more participants in Dataversity, within own organisation and other organisations.
  - All.
- “Throw a cat among the tui”. Raise controversial topics in Dataversity online group, to stimulate discussion.
  - Dan Randow, Dataversity members.

### 3.2 Integrate Ecosystem and Species Ranking into Biodata Systems

Habitat and species ranking systems are useful for prioritisation of biodiversity management efforts, particularly when they are integrated into assessment and monitoring data systems. Environment Waikato, Environment Bay of Plenty, Horizons, the Department of Conservation and Landcare Research have all made progress in this area. An agreed approach, incorporating the work that has been done on prioritisation, could make it easy for local government organisations to improve their own prioritisation practices. This could also facilitate the integration of prioritisation into biodata management systems.

#### 3.2.1 Actions

- For each of the following organisations, contribute a description of current progress with ranking and prioritisation, and the integration of these into data management systems, and seek feedback.
  - Environment Waikato — Yanbin Deng
  - Environment Bay of Plenty — Jim Fretwell
  - Horizons Regional Council — James Lambie
  - Department of Conservation — Shirley Vollweiler
  - Landcare Research — Jerry Cooper
- Review ranking and prioritisation processes and technologies nationally, and make a plan for progress towards adoption of a shared approach, and integration into biodata systems.

### 3.3 Establish Shared Approach to Data Quality Management

Environment Bay of Plenty has developed an approach to assessing and describing the quality of data and its depreciation over time. It is likely that a shared approach to data quality management could benefit biodata managers across the local government sector. Initially, some investigation is required, to review current progress with data quality management, both within and beyond local government, and to explore ways of developing a shared approach.

#### 3.3.1 Actions

- Form a Data Quality interest group, to work towards developing a shared approach to biodata quality management.
  - Jim Fretwell.
  - Liz Kolster
  - others?

### 3.4 Agree and Adopt National Shared Standards

Local and national benefits can be gained from adopting shared standards in the following areas.

- Methods (requires taxonomy of methodologies).
- Data descriptors (organisms and habitats).
- Standards information (metadata).
- Data management (handling, storage, security, verification, sharing).

Currently, agreement and adoption of standards in these areas is limited. Where standards exist, often they do not meet, or are not perceived to meet, local requirements.

Agreement around shared standards is likely to require buy-in from national leadership, including CRIs and local and central government.

#### 3.4.1 Actions

- Make a plan to make a start on this.
  - Dataversity members, James Lambie?, Shirley?
  - Liz Kolster of SSC offers training in standards and metadata.

### 3.5 Create List of New Zealand Biodatabases

Currently, lists of national biodiversity databases exist on the Dataversity website<sup>1</sup> and the Biodiversity Strategy website<sup>2</sup>, and some reviews of local government databases exist. Together, however these do not yet provide a complete and up to date list of databases. A list that was complete and current would be useful to local government biodata managers, looking for opportunities to reuse existing technology or data.

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1 <http://dataversity.org.nz/resources/nationaldatabases/>

2 <http://www.biodiversity.govt.nz/resources/>

### 3.5.1 Actions

- Define a scope for this project, and submit to Dataversity community for review.
  - Dan Randow.

## 3.6 Facilitate Data-sharing between DoC and Local Government

Workshop participants raised concerns about the limited data-sharing that occurs between the Department of Conservation and local government. Situations exist where DoC and local government organisations perceive the other as unwilling to share data, while both are in fact willing to share data.

The impact of this can be expressed as “we're killing them, while you feed them on other side of the fence!”

Some work has been done on an MOU around data-sharing between DoC and local government, but it is not clear how far this has progressed.

### 3.6.1 Actions

- Dataversity participants (Isabella?) to investigate progress with conversations about data-sharing between DoC and local government and to facilitate progress, where possible. Discussions should involve Benno Kappers, Alan Ross, Al Morrison, and Trudy Rankin (all of DoC), and Rob Phillips (Biosecurity Managers Group) and Tony Phipps (Resource Managers Group).

## 3.7 Collaborative Development of Biodata System or Modules

There is potential for Dataversity members to collaborate to develop a biodata system, or modules, possibly using a Local Authority Shared Services approach, and TFBIS or Envirolink funding.

## 4 Presentations

The following presentations were given at the workshop.

### 4.1 Local Government Solutions & Trends Presentations

- Jim Fretwell — EBoP's integrated biodiversity suite. Live demonstration.
- James Lambie — Horizons' ecoBase. Presentation available at <http://dataversity.org.nz/r/file/2689-2009-03-26T080147Z> (PDF, 4251KB).
- Lindsay Vaughan and Kay Anderson, TDC — How a small council handles its biosecurity and biodiversity data. Presentation available at <http://dataversity.org.nz/r/file/2690-2009-03-26T080203Z> (PDF, 1364KB). Movie available at <http://dataversity.org.nz/r/file/2691-2009-03-26T080208Z> (3613KB).
- Ryan Clark and Yanbin Deng, EW — Biodiversity Prioritisation work at Environment Waikato. Presentation available at <http://dataversity.org.nz/r/file/2710-2009-03-26T233620Z> (PDF, 2022KB).
- Mike McMurty, ARC — ARC's Ecobase. Presentation available at <http://dataversity.org.nz/r/file/2692-2009-03-26T080213Z> (PDF, 177KB).
- Philippa Crisp, GWRC — Greater Wellington Parks. Presentation available at <http://dataversity.org.nz/r/file/2693-2009-03-26T080213Z/> (PDF, 1.3MB).

### 4.2 National Solutions & Trends Presentations

- Lynette Hartley, DoC — 5MBC & NHMS. Presentation available at <http://dataversity.org.nz/r/file/2711-2009-03-26T233626Z> (PDF, 1837KB).
- Shirley Vollweiler, DoC — NHMS Overview. Presentation available at <http://dataversity.org.nz/r/file/2712-2009-03-26T233627Z> (PDF, 94KB).
- Jerry Cooper, LCR — NZOR, NVS and other Landcare Research biodiversity systems. Presentation available at <http://dataversity.org.nz/r/file/2713-2009-03-26T233627Z> (PDF, 1785KB).
- Paul Barter, Cawthron — CADDIS Fly. Live demonstration.
- Liz Kolster, SSC — Co-creating an GIF Registry service. Presentation available at <http://dataversity.org.nz/r/file/2714-2009-03-26T233628Z> (PDF, 129KB).
- Isabella Cawthorn, MoRST — Coordinating (taxpayer funded) environmental data. Presentation available at <http://dataversity.org.nz/r/file/2715-2009-03-26T233629Z> (PDF, 114KB).

## 5 the State of Local Government Biodata Management

### 5.1 Uses of Biodata

Workshop participants identified the following uses of biodata in local government.

#### Biodiversity Management

- Species and ecosystem management, including pest management. (Improving quality of life — creating a nice place to live.)
- Identify priorities and opportunities to cost-effectively improve biodiversity management.
- Creating a baseline inventory of biodiversity in an area.
- Monitor changes to assess the direct and indirect effect of actions.

#### Planning and Policy Development

- Justifying expenditure on biosecurity and biodiversity. Showing change.
- Informing (and influencing) decision-making and policy priorities.
- Understanding of biological processes, trends, and relationships and comparisons.
- Educating management and councillors.

#### Consents and Compliance

- Informing processing of consent applications. Educating colleagues.
- Supporting compliance and statutory (RMA, BSA) and community enforcement.
- Informing Environment Court decision-making.

#### Statutory Obligations

- State of the Environment reporting and trend analysis.
- Secondary uses — carbon credits, greater good.

#### Community Education and Engagement

- Informing people about what is there. Public relations.
- Supporting community-led biodiversity and biosecurity activities.

### 5.2 Biodata Management Challenges

Workshop participants identified the following challenges for biodata management in local government.

#### Fitness for Purpose

- End user requirements. Purpose of why data collected. Responding to community interest. What data do you collect?
- Making good use of data. How to store, report, analyse, and interpret data.
- Appropriateness of data. Versatility of data set.

- Interpreting old data to answer new questions. What relevance will historic data have in future as end uses evolve?
- Multi-disciplinary nature of various aspects of Biodiversity (talking same language).
- How will data be interpreted? Loss of control. How to avoid prevent misuse of data. Education of how to use data.
- Science need to see recognition for the data, not just the analysis/interpretation (value of scientist measured by reuse of data).

#### Quantity and Quality of Data

- Gaps in data.
- Knowing what data exists, internally and externally.
- Difficulties identifying where data originates from, and knowing the limitations of data.
- Variations in collection, validation, standards used, storage, analysis, and integrity of data.
- Variations in spatial scale, resolution of data and characteristics.
- Interoperability. Difficulties collating multiple datasets related to a similar subject area.
- Lack of agreed standards or taxonomy (consistent naming, synonyms).

#### Curation

- Data storage, duration, backups. Future proofing. Maintaining existing systems.
- Skill levels. Institutional knowledge/staff turnover. Technological knowledge transfer.
- Variability in data format, and how it is stored and processed. Systems and data compatibility.

#### Distribution of Data

- Ownership of data. Sensitivity issues.
- Biodata “locked up” by private consultants or contractors.
- Publishing existence of data. Lack of delivery systems.
- Geospatial issues – how best to represent records.

#### Resourcing and Management

- Time, funds, political will. Balance between input and outcome. Demonstrating the value of data/growing data — particularly in tight economic times.
- Sheer volume of data. Daunting/overwhelming. Complexity. Keeping up with updating information.
- Not enough monitoring. Cost of monitoring.
- Management of multi-disciplinary teams – merging database skills, end user requirements.

### 5.3 Technologies Used

Workshop participants identified the following technologies that are used for biodata management in local government.

- Pens, pencil, paper (including water proof paper), filing cabinets, boxes.
- Phone, fax, cellphone or radio for in-field communication.
- GPS, compass, map.
- Physical sample collection. Visual and auditory observations.
- Some outsourcing for specialist analysis, eg Freshwater invert sampling.
- DNA analysis.
- In-field instrumentation — depth sounders, turbidity sensors, possum traps, wax tags.
- Telemetry (remote data collection). Continuous data collection, data loggers, remote sensing, Lidar, SONDES device.
- Digital cameras, audio records.
- Aerial photography, satellite imagery, satellite mapping.
- PDAs, handheld electronic computer, laptop, direct download.
- Manual data entry.
- Spreadsheets, desktop databases (often MS Access). Internal database management software and staff. Statistical analysis software vs calculator (vs abacus).
- Standards-based. Technology independent.
- Web for distributing and accessing remote datasets.
- GIS.
- National databases – LENZ, LCDB, NIWA fish, NVS usage by some.

### 5.4 Methods and Practices Used

Workshop participants described the biodata management methods and practices used in local government, as follows.

Standards and protocols

- Data collection.
- Data analysis.
- Verification.
- Description of method.
- Including for self-developed protocols.
- Purpose of data collection.
- Calibration.
- Analytical methods.

### Adoption of Standards

- Uncoordinated, uncollated. Depends on individual staff and their interests.
- Evolving. DoC/MFE haven't provided so filled the gap. Are starting to work towards this (1 – 3 years).
- Create lots of standardised GIS. Some international standards. Own meta-data standards.
- Expert-specific methods. Individuals define the practices and methods because there is no national direction.
- Historical (the way we do it!).
- Different regions have different practices.
- Embrace innovation but make sure it is fit for purpose.
- Balance between validity and ease of casual capture.
- Lack of understanding and knowledge.
- Protection of data from others. Guarding, secretiveness, ownership, confidentiality, protection.
- Use of standards highest in pest-led biosecurity (80%-100%), less in ecosystems related biosecurity (30%) and marine (0%).
- Use published, referenced methodologies to collect monitoring data. Few such methodologies available for Regional Council purposes. Adopting existing datasets (not quite fit for purpose).
- Some expert review, advice, provision of methodology.
- Opportunistic in cases (use data collected for other reasons).

## 6 Workshop Programme

The workshop programme was as follows.

	<b>Thursday, 19 March</b>	<b>Friday, 20 March</b>
9:00 – 10:30	Introductions	National Solutions and Trends
10:30 – 11:00	Morning Tea	Morning Tea
11:00 – 12:30	State of Local Government Biodiversity Data Management	National Solutions and Trends
12:30 – 1:15	Lunch	Lunch
1:15 – 3:00	Local Government Solutions and Trends	Opportunities and Actions
3:00 – 3:30	Afternoon Tea	Afternoon Tea
3:30 – 5:00	Local Government Solutions and Trends	Close Finish @ 4:00
6:30	Dinner	

## 7 Feedback from Participants

23 workshop participants provided the following feedback.

### 7.1 Relationships Built

23 participants agreed (16 strongly) with the statement “The relationships I built at this workshop will be useful.”

Participants reported that it was useful to establish new relationships and to strengthen existing relationships during the workshop, with people both from their own sector, and from different sectors. Participants reported that making “contact with other councils facing similar challenges to us” would help with gaining “access to new databases” and identifying “people to get information from”. Participants also reported that they recognised the need and potential partners for collaboration.

### 7.2 Awareness Gained

23 participants agreed (13 strongly) with the statement “The awareness I gained at the workshop will be useful.”

Participants reported that it was valuable to them to know “where different organisations are at with database development and data sharing”, to gain understanding, and to know more about “the problems facing councils [and the] levels of willingness to tackle the problems”. This provided “affirmation [that participants'] work is useful and relevant” and ways to “improve the efficiency and effectiveness at our work”.

### 7.3 Opportunities Identified

21 participants agreed (10 strongly, 1 was neutral, 1 did not respond) with the statement “The opportunities I identified at the workshop will be useful.”

Some workshop participants reported that they gained ideas that they planned to incorporate into their work. Others gained opportunities to obtain tools, at low or not cost. Others reported that they saw opportunities such as to “contribute to general discussions and debates about common standards and classifications” and to collaborate “with other councils and DoC on biodiversity data collection, sharing, management, etc – very exciting”.

### 7.4 What was Most Valuable

Around half of the participants reported that the relationships they built, through both formal and informal conversations, were the most valuable aspect of the workshop. These conversations, and the insight gained into each others' systems and challenges “revived [participants'] inspiration” and provided opportunities to “communicate and work together to achieve common goals in biodiversity management”.

### 7.5 What Could be Improved

Overall, participants reported that they found the workshop well-organised. Suggested improvements included better timing of presentations, amplification for presenters, better food, a greater range of participants and “more info prior to the workshop”.