

**“Improving Information Systems to
Support Terrestrial and Freshwater
Biodiversity Conservation in New
Zealand”**

WORKSHOP REPORT

**10-11 November 2003
Kilbirnie, Wellington**

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Contents

EXECUTIVE SUMMARY.....	4
1 INTRODUCTION.....	6
1.1 <u>BACKGROUND</u>	6
1.2 <u>WORKSHOP PARTICIPANTS</u>	6
1.3 <u>WORKSHOP AGENDA, KEY POINTS AND USEFUL RESOURCES</u>	8
2 TFBIS PROGRAMME SUCCESSES.....	9
2.1 <u>BACKGROUND</u>	9
2.2 <u>WORKSHOP FEEDBACK ON THE TFBIS PROGRAMME</u>	9
2.3 <u>FEEDBACK ON THE WORKSHOP</u>	10
3 THE LOCAL GOVERNMENT “CAUCUS”.....	11
3.1 <u>INTRODUCTION</u>	11
3.2 <u>ISSUES AFFECTING LOCAL GOVERNMENT</u>	11
3.3 <u>LOCAL GOVERNMENT CAUCUS CONCLUSIONS</u>	12
4 KEY ISSUES.....	13
4.1 <u>INTRODUCTION</u>	13
4.2 <u>INCOMPLETE DATA ACCESS AND DATA INTEROPERABILITY</u>	13
4.3 <u>LOCAL GOVERNMENT, NGO, IWL, AND LANDOWNERS CAPACITY</u>	14
4.4 <u>AVAILABILITY OF LOCAL GOVERNMENT AND NGO BIODATA</u>	14
4.5 <u>BIODIVERSITY DATA AND INFORMATION NEEDS ARE NOT WELL DEFINED</u>	14
5 RECOMMENDATIONS FOR FUTURE TFBIS PROGRAMME PROJECTS.....	16
5.1 <u>INTRODUCTION</u>	16
5.2 <u>RECOMMENDED SPECIFIC PROJECTS</u>	16
6 RECOMMENDATIONS FOR FUTURE WORKSHOPS.....	18
6.1 <u>WORKSHOP STRUCTURE</u>	18
6.2 <u>FUTURE PARTICIPANTS</u>	18
APPENDIX ONE: <u>WORKSHOP PARTICIPANTS</u>	19
APPENDIX TWO: <u>AGENDA</u>	21
APPENDIX THREE: <u>KEY POINTS FROM PRESENTATIONS</u>	23
APPENDIX FOUR: <u>RESOURCES TO SHARE</u>	36
A <u>WEBSITES</u>	36
B <u>REGISTRY OF DATA/INFORMATION</u>	36
APPENDIX FIVE: <u>ISSUES RAISED BY PARTICIPANTS</u>	37
APPENDIX SIX: PARTICIPANT RECOMMENDATIONS FOR TFBIS PROGRAMME FUNDED PROJECTS.....	39
APPENDIX SEVEN: PARTICIPANT OPINIONS ON WHAT, AND WHO, WAS MISSING FROM THE WORKSHOP.....	41
APPENDIX EIGHT: <u>ACRONYMS</u>	43

EXECUTIVE SUMMARY

The Terrestrial and Freshwater Biodiversity Information System (TFBIS) Programme was launched as part of the Government's New Zealand Biodiversity Strategy funding package announced in March 2000. Soon after the Programme's establishment the Programme sponsor and steering committee sought priority directions for the Programme through input from six regional workshops¹.

Six broad issues emerged from the regional workshops as follows.

- (i). Potential users are often unaware of potentially useful data and information resources about New Zealand's biodiversity and how to manage it, and/or find it difficult to access these resources
- (ii). National and regional programmes/ projects to conserve and manage biodiversity are not well advertised
- (iii). Some distrust and concern handicaps the acquisition and use of biodiversity data and information
- (iv). Inadequate information management practices by owners/stewards and/or custodians of biodiversity data and information resources handicaps the use of these resources
- (v). Some significant data and information that would enable improved biodiversity management simply does not exist
- (vi). Some relationships between biodiversity management contributors are weak

In November 2003 the TFBIS Programme hosted a workshop to discuss the state of terrestrial and freshwater biodiversity information systems in New Zealand, and options to improve them. This workshop was the first substantial national gathering focused on data and information required for biodiversity conservation.

Workshop participants were briefed on the state of biodiversity information in New Zealand, including the role of the TFBIS Programme in supporting current work. The workshop generated substantial feedback through discussion, and written responses. This feedback carries distinct messages for the TFBIS Programme Sponsor and Steering Committee, and data and information providers and data users.

¹ Arand J and Lauder G June 2002 Information issues and solutions identified by New Zealand terrestrial and freshwater biodiversity management contributors. Unpublished report prepared for the Sponsor and Steering Committee of the Terrestrial and Freshwater Biodiversity Information System (TFBIS) Programme. Department of Conservation, Head Office, Wellington. 10p.

One of the workshop's aims was to raise awareness of data and information resources or services that support biodiversity conservation, and those under development. In that respect the workshop was considered to be extremely successful, and there was considerable support for ongoing dialogue to support collaborative efforts.

There has been excellent progress in moving heritage datasets into electronic/spatial formats, and continuation of this process is endorsed. However, there are reservations about how this data is being served up to the biodiversity community. The giants (i.e. central government agencies and Crown research institutes (CRIs)) are perceived by some potential users to be focused on serving their own data needs in isolation, using various technologies, and sometimes only to an intranet. The workshop called for a national approach to establishing protocols for data access and interoperability. Models for a common platform serving data from widely distributed nodes do exist, such as the Global Biodiversity Information Facility (GBIF) and the Australian Spatial Data Infrastructure (ASDI²). If such an infrastructure does not exist for New Zealand, then there is a risk that the wealth of data held by local government and NGOs may not be captured and applied effectively.

The workshop identified that the needs of "minor" players are not met by existing terrestrial and freshwater biodiversity information systems. Local government, NGOs, and other participants at the workshop were not really aware of progress, and felt that they have not been part of the process to date. It was agreed that agencies and individuals would benefit from stronger collaborative networks. The workshop's agreement to the concept of facilitating "communities of practice" is one way forward.

Some feedback was also received that the biodiversity data and information needed for biodiversity conservation in New Zealand are not well defined.

In conclusion, the workshop identified three strands of work for the TFBIS Programme to progress:

- (i). Continue the focus of the existing approach of the TFBIS Programme
- (ii). Provide leadership in the development of protocols for data access, and a common platform for serving that data to the wider community.
- (iii). Facilitate and enhance the collaborative people networks that will generate effective action.

² <http://www.anzlic.org.au/infrastructure.html>

1 Introduction

1.1 Background

A national workshop for providers and users of data and information about biota and biodiversity that underpin biodiversity conservation in New Zealand was hosted in Wellington on 10 and 11 of November 2003 by the Sponsor and Steering Committee of the Terrestrial and Freshwater Biodiversity Information System (TFBIS) Programme.

The TFBIS Programme is administered by Conservation Policy Division, of the Department of Conservation. Management of the Programme is overseen by the Programme Sponsor (Keith Johnston, GM Conservation Policy) and Steering Committee. Further details about the TFBIS Programme are available at <http://www.biodiversity.govt.nz/land/nzbs/information/tfbis/index.html>.

The objectives of the workshop were to:

1. Raise awareness of new data and information resources/services that support biodiversity conservation, and those resources/services that are under development
2. Obtain advice about biodiversity data/information issues and solutions that the TFBIS Programme should focus on
3. Obtain advice about how to improve the way that the TFBIS Programme is operating.

This workshop followed a round of regional workshops between November 2001 and March 2002. These workshops sought to identify the information issues affecting biodiversity management contributors, and found technical matters concerning the capture of datasets in electronic/spatial formats to be a significant issue at the time. A report summarizing the outcomes of the earlier workshops is available on the Government's Biodiversity Information Online website at <http://www.biodiversity.govt.nz/land/nzbs/information/tfbis/description/summary.html>.

1.2 Workshop participants

The workshop attracted almost 70 invited participants from a range of backgrounds, including scientific, information technology (IT), policy and/or hands-on biodiversity management. A list of workshop participants is provided in Appendix one. The organisations represented spanned Crown Research Institutes (CRIs), local and central government, Landcare Trust, QEII National Trust, the New Zealand Ecological Restoration Network (NZERN), societies, and consultancies.

The TFBIS Programme sponsor and most members of the Programme's steering committee were present for at least some, if not all of the workshop.

The workshop was facilitated by Glen Lauder (CommonGround, Wellington).

On the first day of the workshop participants were asked to indicate their background and relative strengths in ‘technical’, ‘data’ or ‘practitioner’ fields. The results of these surveys are charted in Figures One and Two below.

Figure One:

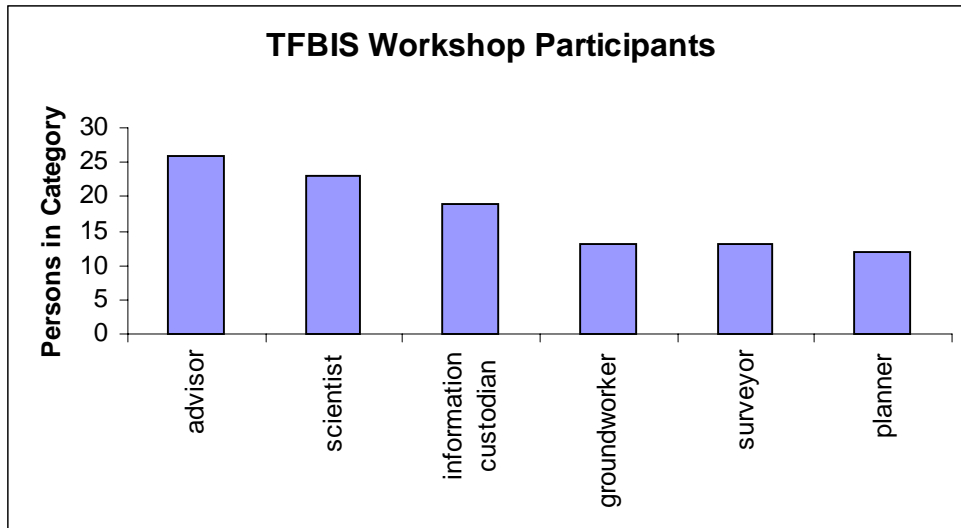
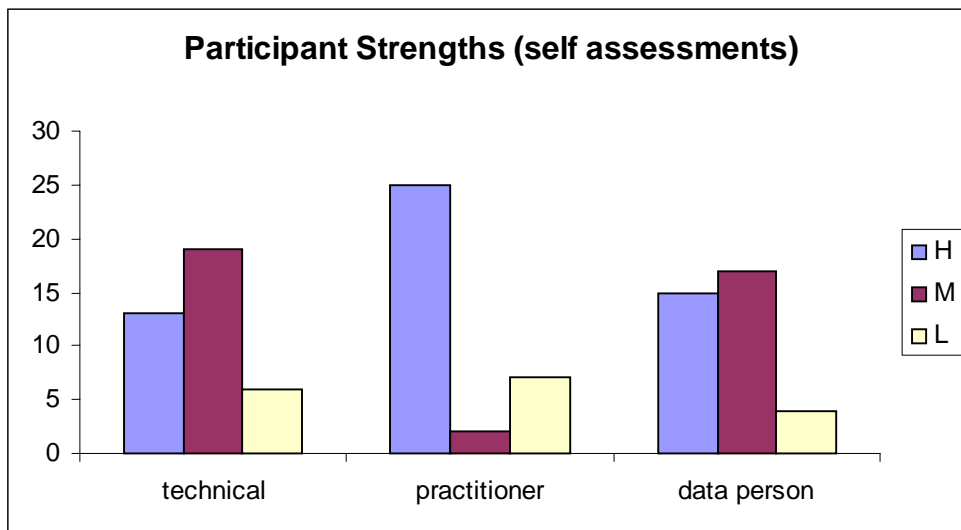


Figure Two:



Note: There were 39 respondents to this survey. Some of the respondents associated themselves with more than one background or strength.

1.3 Workshop agenda, key points and useful resources

The workshop agenda is presented in Appendix two. Key points from all of the presentations were recorded by the authors of this report, and are presented in Appendix three.

The workshop identified a number of useful web-based resources of interest to the participants, which are presented in Appendix four.

2 TFBIS Programme Successes

2.1 Background

As part of the Government's NZBS funding package the Terrestrial and Freshwater Biodiversity Information System (TFBIS) Programme has been allocated \$9.6 million (GST inclusive) for the five year period 2000-2005, and \$2.714 million annually thereafter. The Programme is now in Year Four of implementation.

The TFBIS Programme is administered for the benefit of all agencies and organisations that contribute to the management of New Zealand's indigenous biodiversity. Project proposals are invited and assessed by the TFBIS Programme Sponsor and Steering Committee.

TFBIS funding to date has been allocated to almost 40 projects. Currently funded projects are summarized on the following webpage:

<http://www.biodiversity.govt.nz/land/nzbs/information/tfbis/projects/index.html>. The recipients of project funding include New Zealand Ecological Restoration Network (NZERN), QEII National Trust, Landcare Research, Department of Conservation, New Zealand Plant Conservation Network, National Institute for Water and Atmospheric Research (NIWA), Ornithological Society of New Zealand (OSNZ), and the New Zealand Ecological Society (NZES).

2.2 Workshop feedback on the TFBIS Programme

There was limited direct discussion at the workshop of the approach of the TFBIS Programme, including projects funded to date. Feedback was however noted during the discussions about the presentations on TFBIS Programme funded projects, and the wrap-up discussions at the end of the workshop.

This feedback included:

- (a). The objectives of the TFBIS Programme are supported.
- (b). The push towards increased digitization and accessibility of biodiversity information on-line is strongly endorsed. As examples, development of the second edition of the New Zealand Bird Atlas by the Ornithological Society of New Zealand was well supported, and perceived as a good value for money project, and the Information Resources webpages were considered useful (www.biodiversity.govt.nz).
- (c). There is some discomfort at the nature of the funded enterprise systems where accessibility to outsiders is perceived to be currently limited (e.g., Bioweb).

Participants therefore appeared to support the continuation of the TFBIS Programme's present funding path. However by the end of the workshop additional funding priorities were also identified.

2.3 Feedback on the workshop

At the end of the workshop participants were asked: “During this workshop, what has been of most value to you?”

The most common response identified was an improved awareness of available information resources, with strengthened people networks the next most common point of success. The responses received are summarised in Table Two below.

Table One: During this workshop, what has been of most value to you?

Replies	Frequency
Improved awareness of different data and information sources	20
Dialogue regarding sharing data, networking	10
Broader perspective of how my role fits in to the big picture	3
Chance to talk to other regional councils about what they are doing	2
Showed the thinking that is currently being applied to biodiversity issues	1
Helped put our work in perspective	1
Opportunity to discuss current issues	1
Provide confidence for our paymasters	1
Insight to where New Zealand is at in moving towards a holistic framework of data access and sharing	1
Reconfirming, illuminating bio"bloody do or die"iversity	1
Understanding issues and possible solutions surrounding biodiversity information	1
Ability to see more clearly where DOC should be headed in terms of leadership and integration	1
Identified that "biodiversity" means very different things to different people	1
Feeling that data providers are interested in contributing	1
See the potential of what could be done if we remove financial and political impediments to co-operation	1
Discuss the content and context of the biodiversity web portals	1
Enrol key Local Government people in a co-coordinated approach	1
Insight into how to develop a common ground between information users and providers	1
Clarified the biodiversity data issues	1
Understand the range of interpretations of TFBIS Programme and the Global Biodiversity Information Facility (GBIF), insight to whether data should be in a few national storehouses, or many nodes	1

3 The Local Government “Caucus”

3.1 Introduction

At the facilitator’s suggestion, a local government “caucus” was convened for the duration of the workshop. This group met intermittently over the two days and attracted local authority policy, planning and technical (GIS and ecological) staff, consultant ecologists and planners, and groups working with local government (e.g., QEII National Trust and Landcare Trust).

The purpose of the group was to initiate contact and discussions between practitioners active within local government and to distil biodiversity information issues especially relevant to the sector.

3.2 Issues affecting local government

The caucus discussions identified a number of biodiversity information issues for local government sector. These issues included:

- (a). National databases (e.g., LENZ) lack local detailed information.
- (b). There is heaps of data out there, but it remains relatively inaccessible to ‘Joe Blo’, especially the site specific data. And interpretation does require experience; the strength and limitations of data become apparent through application.
- (c). Local government still has a great deal of difficulty extracting data from Landcare Research and the Department of Conservation, especially where it’s not available on the public servers.
- (d). There is a strong interest in the micro data (i.e., the <1ha stuff) – TFBIS should have a role in the collection and integration of local data sets.
- (e). But we are also wary of the promises of all-encompassing national systems, and would prefer systems that remain diffuse but interoperable.
- (f). Councils are an important data source, and provide multiple effective web portals. LG has the capacity to make it happen. The technical issues of data sharing and interoperability may be relatively trivial, as the main barriers are intellectual property issues and sorting out the relationships among the different people and agencies with a role in reaching a decision (this view was widely held among LG technical experts).
- (g). Overall the local government sector needs to be clear collectively about precisely what it wants. There are significant risks if all 86 units of local government tackle this issue independently.
- (h). Councils vary in their approach to providing information to community groups - some are great while others are poor.
- (i). Council systems are not integrated with those held by the Department of Conservation.
- (j). The quality of data and metadata is more important long term.
- (k). Many councils don’t know the extent of information available, and how they could use it.

- (l). Iwi, large landholders, community should benefit from improved information systems but how do we get the right level of information to them?
- (m). How do we capture the large volume of local information generated by voluntary forces?

3.3 Local government caucus conclusions

The conclusions reached by the local government caucus included:

- (a). Support for a national working group approach to management of biodiversity information, especially to address issues between DOC, CRIs and councils, and involving outside groups.
- (b). Mechanisms to improve communication between local government, CRIs and DOC are needed.
- (c). Getting the right information to people on the ground needs advisors who are aware of the larger information picture.
- (d). Local government should not get too caught up in a high-level technical approach to biodiversity information, when one aim is to deliver something that private landowners can easily use.
- (e). Regional Councils are willing to work together; e.g., in the development of information systems to manage data.
- (f). Councils are generally very keen to share ideas and approaches.

4 Key Issues

4.1 Introduction

Clear identification of the information issues affecting terrestrial and freshwater biodiversity conservation was a primary objective of the TFBIS Programme workshop.

To assist issue identification, the workshop facilitator invited participants to write down their personal response to the question:

“What do you think is the key issue constraining biodiversity information in New Zealand?”

The participant responses are presented in Appendix five. Four key issues emerged from an analysis of participant responses.

The two most frequently raised issues relate to:

- (a). Incomplete data access and data interoperability. Answering complex biodiversity conservation questions involving many disparate types of data from many sources depends on open access to data, and consistent standards for data and metadata.
- (b). Local government, NGO, Iwi, and landowners may not have the capacity to utilise available information. A lack of capacity to interpret biodata, or integrate diverse data in a GIS for instance, can create barriers to participation.

A further two issues were also identified:

- (c). Biodata gathered by local government or non-government organisations is often unavailable for biodiversity conservation management
- (d). The data and information actually needed for biodiversity conservation are not well defined.

Each issue is discussed in more detail below. This discussion acknowledges the issues raised in the workshop’s local government caucus and described in Section Three.

4.2 Incomplete data access and data interoperability

Written responses from participants indicated a desire to ensure biodiversity information from various sources is fully accessible and interoperable – that is, managed in a consistent manner. This ideal seems a long way from being achieved. While there has been excellent progress in moving heritage data sets into electronic and spatial formats, there are concerns about the accessibility of this information.

The Global Biodiversity Information Facility (GBIF) was established to take on a special set of tasks that will make it possible for policy and decision makers, researchers and the general public to electronically access the world's supply of primary scientific data on biodiversity. Avoidance of both competition and unnecessary duplication of effort is a mainstay of the GBIF philosophy. The workshop identified that a similar initiative at a national level, including protocols for data access and interoperability, may be one effective way to improve data access and interoperability.

4.3 Local government, NGO, Iwi, and landowners capacity

Existing terrestrial and freshwater biodiversity information systems are not meeting the needs of "minor" players particularly well. Local government, NGOs, and other participants at the workshop were not really aware of recent progress, and felt that they have not been part of the process to date. They may not have the capacity to effectively use existing terrestrial and freshwater biodiversity information

Some biodiversity data of a technical nature, such as ecological surveys for instance, are and not readily interpreted by non-ecologists. Similarly, integrating disparate types of data in a Geographic Information System (GIS) to answer specific questions may be readily undertaken by research institutes, but its use is often beyond the capacity of many organisations and individuals.

Where local government, NGOs, Iwi and private landowners do not have the technical capacity to make full use of available terrestrial and freshwater information, then their biodiversity decision making processes may not be optimal.

There are significant risks if all 86 units of local government try to tackle the issue independently. Agencies and individuals would benefit from stronger collaborative networks. Workshop participants agreed that the concept of facilitating a "community of practice" would be a way forward.

4.4 Availability of local government and NGO biodata

The biodata gathered by local government and non government organisations is often unavailable for biodiversity conservation management. A related issue is the lack of focus on data captured at a fine spatial scale, i.e. ongoing field surveys and taxonomic collection.

Existing efforts to create national databases of some information types may not be enough. Participants questioned how the wealth of local data generated by local government and others will be included.

4.5 Biodiversity data and information needs are not well defined

Some feedback indicated that New Zealand's biodiversity data and information needs are not well defined. This issue was a bit of an undercurrent through the workshop. Some respondents raised it, but the problem became more noticeable during the local government (LG) caucus sessions described in Section Three. However the caucus did not go as far as identifying what was wanted from the DOC, TFBIS Programme, or CRI work programmes.

The issue was also raised during discussion in the form of the following questions;

- What are our information needs?
- Where are we going with this?
- Can we confirm that information is actually being used for management?
- Are specifications for information systems linked to local biodiversity needs?

5 Recommendations for Future TFBIS Programme Projects

5.1 Introduction

At the conclusion of the workshop participants were asked to write down their response to the following question:

“What specific projects do you think the TFBIS Programme should fund?”

A full summary of participant responses to this question are presented in Appendix six.

Based only on the responses received, the authors have attempted to generate a list of recommendations for the TFBIS Programme. These are presented below under the four broad issues presented previously in Section Four. Some recommended actions do not fit well into any one category, or may contribute positively to resolving more than one issue.

The lack of specificity in some of the recommendations reflects the detail provided by participants. Consequently, the TFBIS Programme Steering Group will need to interpret some recommendations in light of their own experience of the workshop, and their own knowledge of current priorities and projects.

5.2 Recommended specific projects

Issue 1: Incomplete data access and data interoperability.

- Focus on finishing some of the big data projects that have been started.
- Create a national register of all biodiversity related databases, distinguishing which are public domain access, and whether available in electronic/spatial formats.
- Notornis articles online (not just the abstracts).
- Make Protected Natural Areas Programme (PNAP) data more widely available.
- Creation of species distribution maps, national fauna and threatened species. Note the support for the Ornithological Society (OSNZ) bird atlas approach.
- ECOSAT coverage for all of NZ
- Photos database.
- Get Species 2000 useable.
- Taxonomic names database.
- Improve the accuracy of the River Environments Classification (REC)
- Support a collaborative grouping for development of protocols and agreements for open data access to overcome the data access barriers created by intellectual property and custodianship issues perceived by some participants

to exist. Participants might include central and local government, CRI, university, NGO, and landowner interests.

- Support a collaborative grouping to provide national leadership to progress the creation of a common platform, serving spatial and non-spatial data from widely distributed data source nodes in an integrated fashion. Investigate models such as GBIF and Australian initiatives (e.g. the Australian Virtual Herbarium www.chah.gov.au/avh/). Participants might include central and local government, CRI, university, NGO, and landowner interests. Will need to include strong technical IT representation, possibly including international contributors.

Issue 2: Local government, NGO, Iwi, and landowners may not have the capacity to utilise available information.

- Provide a series of CDs to libraries of public domain data (i.e. any data that has the potential to contribute to biodiversity conservation), where that is not available on the web.
- Make the outputs from this workshop available to participants and others.
- Fund a “librarian” for 1-5 years. A national point of contact for help in locating available information.
- Include NGO representation on TFBIS Steering Committee
- Improve awareness of currently available information, and stuff in the pipeline.
- Maintain a subscriber list for “Information Resources” on the Government’s biodiversity website (www.biodiversity.govt.nz).

Issue 3: Biodata gathered by local government or non-government organisations is often unavailable for biodiversity conservation management.

- Support a collaborative grouping to enable local government to apply biodiversity information effectively in terms of priority setting and decision support, visualisation, mapping, and integrated data analysis. Develop and build on successful examples, and contributions from participants. Provide a support network to assist the many participants that do not have the specialist GIS or ecological capacity to make effective use of available data. Participants to include a wide range, ensuring at least one representative from each LG unit is kept in the loop. Regional forums to facilitate awareness to a maximum potential user community.
- Support a collaborative grouping to co-ordinate freshwater biodiversity information systems. Participants to include central and local government, CRI, and NGO representation.

Issue 4: The data and information actually needed for biodiversity conservation are not well defined.

- Continuation of these workshops on perhaps an annual basis.

6 Recommendations for Future Workshops

6.1 Workshop structure

Participants were asked to write down what they believed was missing from the workshop. Participant responses to this question are presented in Appendix seven.

The most common response indicated a lack of discussion time, too much being talked to, and too little time being talked with. The next most frequent response was an endorsement of the workshop structure. These responses were somewhat contradictory, but that may be expected given the range of participant backgrounds, and their varying expectations.

6.2 Future participants

Participants were also asked to consider who else should have been present at the workshop. These responses are also summarised in Appendix seven.

Some of the organisations and people named were actually invited to the workshop, but were either unable to attend or did not reply to the invitation. The Sponsor and Steering Committee also wanted to limit the number of workshop attendees to approximately 60 people, because this was considered to be an appropriate number to enable some discussion during the sessions.

APPENDIX ONE: WORKSHOP PARTICIPANTS

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APPENDIX TWO: AGENDA

Improving Information Systems to Support Terrestrial and Freshwater Biodiversity Conservation in New Zealand

10-11 November 2003

Brentwood Hotel, 16 Kemp Street, Kilbirnie, Wellington

Monday 10 November			
1.	9:30-9:40am	Open	<i>Glen Lauder</i> <i>CommonGround—Director, and Action BioCommunity Programme Co-Manager</i>
2.	9:40-9:50am	Welcome	<i>Keith Johnston</i> <i>DOC—GM Conservation Policy, and TFBIS Programme Sponsor</i>
3.	9:50-10:00am	Introductions	<i>Glen Lauder</i>
4.	10:00-10:30am	A reminder about New Zealand's biodiversity	<i>Matt McGlone</i> <i>Landcare Research</i>
5.	10:30-11:00am	<i>Morning tea</i>	
6.	11:00-12:15pm	Fundamental environmental classifications: LENZ, FWENZ, , LCDB and ECOSAT	<i>Dan Rutledge</i> <i>LCR - LENZ</i> <i>Lindsay Chadderton</i> <i>DOC - FWENZ</i> <i>Kirsty Johnston</i> <i>MfE - LCDB</i> <i>John Dymond</i> <i>LCR - ECOSAT</i>
7.	12:15-1:15pm	<i>Lunch</i>	
8.	1:15-2:00pm	Approaches by one regional council and DOC to using data and information for biodiversity conservation	<i>Diederik Meenen</i> <i>Independent contractor (formerly Wellington Regional Council)</i> <i>Phil McIntyre and Lindsay Chadderton</i> <i>DOC</i>
9.	2:00-2:45pm	Internet mapping services	<i>Stuart Waring</i> <i>DOC</i> <i>Nick Spenser</i> <i>LCR</i>
10.	2:45-3:15pm	<i>Afternoon tea</i>	
11.	3:15-4:15pm	Priority issues and projects	<i>Glen Lauder</i>
12.	4:15-4:25pm	Thanks	<i>Keith Johnston</i> <i>DOC—GM Conservation Policy, and TFBIS Programme Sponsor</i>
13.	4:25-4:30pm	Close	<i>Glen Lauder</i>

Tuesday 11 November			
1.	9:30-9:40am	Open/welcome	<i>Glen Lauder</i>
2.	9:40-9:50am	Introductions	<i>Glen Lauder</i>
3.	9:50-10:30am	Government biodiversity-related data/information programmes	<i>Sarah Wilson</i> <i>Action BioCommunity</i> <i>Kirsty Johnston</i> <i>MfE</i> <i>Joseph Arand</i> <i>DOC</i>
4.	10:30-11:00am	<i>Morning tea</i>	
5.	11:00-11:30pm	Improving access to information about natural areas	<i>Willie Shaw</i> <i>Wildland Consultants</i>
6.	11:30-12:45am	National biodatabases and taxonomic databases	<i>Larry Burrows</i> <i>LCR – Biodatabases</i> <i>Aaron Wilton</i> <i>LCR – Taxonomic databases</i> <i>Malcolm Harrison</i> <i>DOC - Bioweb</i> <i>Chris Robertson</i> <i>Ornithological Society of New Zealand</i>
7.	12:45-1:45pm	<i>Lunch</i>	
8.	1:45-2:30pm	The Freshwater Biodiversity Information System	<i>Don Robertson</i> <i>Mark Weatherhead</i> <i>Steve Massey</i> <i>NIWA</i>
9.	2:30-3:15pm	Networking the Ecological databases	<i>Jerry Cooper and Don Robertson (joint)</i> <i>LCR and NIWA</i>
10.	3:15-3:45pm	<i>Afternoon tea</i>	
11.	3:45-4:45pm	Priority issues and projects	<i>Glen Lauder</i>
12.	4:45-4:55pm	Wrap-Up	<i>Joseph Arand</i> <i>DOC—TFBIS Programme Manager</i>
13.	4:55-5:00pm	Close	<i>Glen Lauder</i>

APPENDIX THREE: Key points from Presentations

This appendix presents brief notes on presentations delivered to the workshop, and workshop discussion. The notes reflect the authors interpretation of presentations as they were delivered, and should therefore not be taken as an authoritative record. For further detail, or clarification, we recommend readers contact the relevant presenter directly. Email contacts are given in appendix one.

DAY ONE (10 November 2003)

Keith Johnston – Introduction

Projects funded through open funding rounds. Initial focus on getting existing data into electronic format, followed by bolstering heritage data sets. After that, new data and information projects will be supported.

The steering committee determines the priorities and program shape. It has identified six categories of information provider/user.

1. Groundworkers
2. Planners
3. Advisors
4. Surveyors
5. Scientists
6. Information Custodians

At the outset, the TFBIS Programme was considered to drive a national information “system”. However, a “system” of biodiversity information already exists in many ways, electronic, paper, memory, relationships. So the focus shifted to enhancing the priority parts of the system, with a focus on national goals. Within that, focus is targeted to three subsets, New Zealand biodiversity, how to manage biodiversity, guidance on managing data.

Applications for the next funding round close 5pm Monday 2 February 2004.

Matt McGlone – Setting the Scene

Delivered an “apowerpoint” feature placing New Zealand’s biodiversity in a long term perspective. Spoke of the tyranny of distance, time and space, the drivers of our very unique heritage. Expanded the time theme into the realm of information, and the very different perspectives providers and users have of the value of information as it ages.

As scientists we’ve stayed away from modified landscapes, left them to the agriculturalists. That must change to meet international obligations and to reduce the decline in biodiversity.

Information collection is detached from the users; often not written up; not used in policy development and decision making. Note the unique importance of long records.

Wary of the threat of IT, and the self-perpetuating nature of monitoring programs persisting long after the rationale for their existence is gone.

Session one - Classification systems

Presentation were delivered relating to LENZ, REC, FWENZ, LCDB (1 and 2), Ecosat.

Feedback generally supportive with additional comments/concerns:

- Significant interest from local government (especially emerged following the FWENZ presentation) and seeking opportunities to be involved, consulted over possible applications and get in touch with developments / implementation.
- Ease of availability for non-professionals / community groups.
- Relationship with existing classifications e.g FWENZ versus the 3 year old wetland classification.³
- What do the classifications mean for the Ecological Regions and Districts Framework (this emerged as an issue later on in the workshop).
- Providing clear information on the relationship and use of different classifications and resource information e., relationship between LENZ and LCDB II.
- Limitations of LCDB being based on satellite data? LCDB incorporates other sources of knowledge also.
- Some people may also seek access to datasets underlying the classifications, and potentially some issues here. E.g., Some of the datasets underlying LENZ are held by other agencies (and not freely available?).
- Workshop participants interested to know possible applications of the classifications for ecological / resource management.
- Direct application of LENZ by DOC (Phil McIntyre's presentation) with allocation of responsibility for reporting on the 20 LENZ environments to Conservancies. Results to be gathered for the compilation of a national report.
- How will we maintain effective change analysis when technology and knowledge keeps advancing?
- Results can become data driven and lose important contextual considerations, including linkages to the social and cultural contexts. Risk that these systems become known as the only source of reliable information.
- There is much more fundamental data than that discussed today. Cadastral, topographical, soils, climate, and other underlying data layers that various classifications are built on.
- LENZ is only Version 1.0; need to be aware of its potential limitations.
- No clear feedback on role for TFBIS Programme. However from the feedback received could be some potential in the following:
 - TFBIS Programme funding to focus on adding value to information access and facilitate effective uptake.
 - Increase accessibility via the Biodiversity Information Resources portal

³ From Information Resources: **Co-ordinated monitoring system for wetlands**

Final report of Project Phase One by J.C Ward and J.S Lambie, Lincoln Environmental, Lincoln University, Canterbury (46p), and funded by the Ministry for the Environment Sustainable Management Fund (SMF). This report was originally scoped through the organisation UNEP-GRID, and provides a classification framework for New Zealand's wetlands, where wetlands are defined to include lakes, rivers and estuaries. View the report in PDF format using the **SMF search engine**. (Note: Organisation = "UNEP-GRID")

- Trial applications and making lessons concerning good practice readily available.
- See Glen's drawing re: future working relationships between parties involved in biodiversity conservation on private land, particularly getting councils working together.
- Look at tools to promote the "Community of Practice" including use of the IR portal, such as subscription to regular mail outs, a what's new column and a moderated notice board facility.

For detail on sourcing the various classification data, see the data registry section at the end of this document.

Session Two – Examples of Regional Council and DOC approaches to using data for biodiversity conservation, and Internet Mapping Services

PNAP results not yet fully digitised and left to conservancies to prioritise.

Discussion re: interoperability of different data sources e.g., availability of survey plot data on DOC gis? DOC unwilling to become the repository of all survey data (Stuart Waring).

DOC approach to its GIS is a distinct enterprise system.

A regional example of data integration – Diederik Meenken

GIS and the recent availability of spatial biotic and abiotic datasets enable the natural world to be modeled in many ways, dependant on information need. Encourage a community of practice to develop around these new tools, to complement existing approaches to biodiversity management. This community of practice has the potential to engage local government decision makers, managers, GIS and ecologist staff in a common and evolving conversation.

A context for regional forest biodiversity was created using LENZ, ECOSAT, and some principles. The output can be presented as a relative ranking of 7000 sites, or as a continues regional layer.

Concerns that the existing classifications lack information about species distribution, especially biotic communities other than forests/trees.

NHMS (Natural Heritage Management System) – Phil McIntyre

Shift in reporting to LENZ level 2 landclass based. Initially focusing on indigenous cover and levels of protection, and moving towards incorporating pressure layers. Ultimately intend to report "difference made" at a national level by landclass.

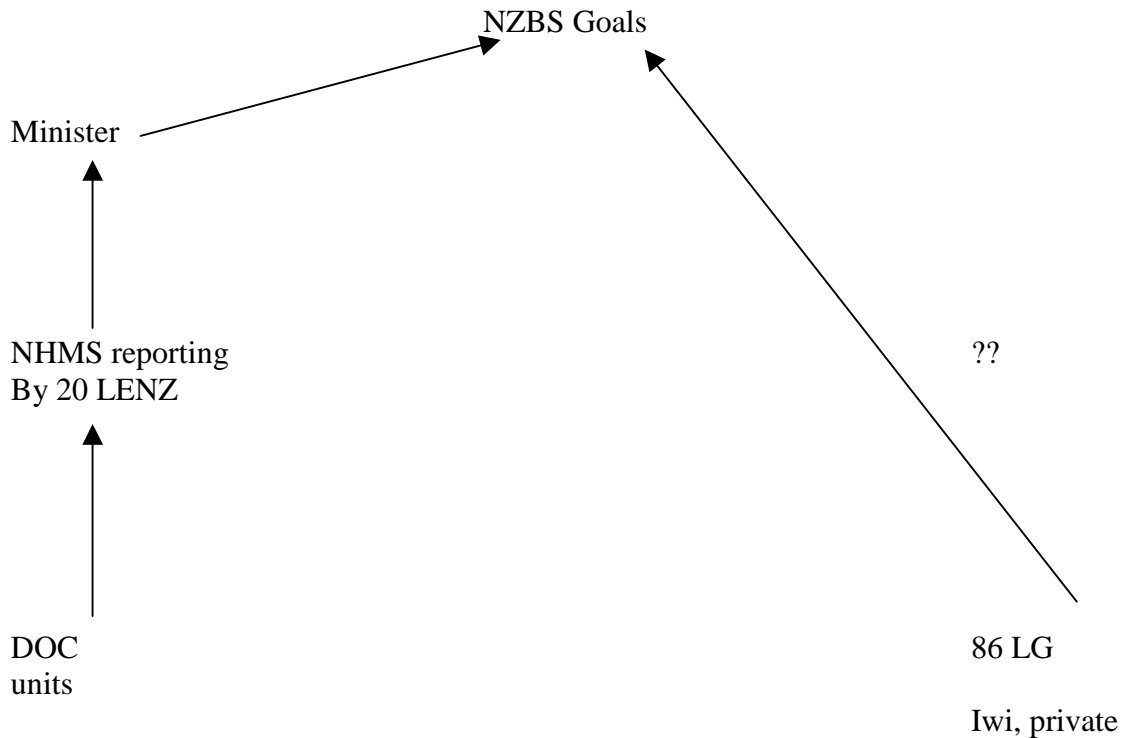
A very substantial change in DOC's business management model.

Freshwater NHMS – Lindsay Chadderton

Similar philosophy to landbased NHMS, but a little behind in implementation. Immediate focus on establishing national priority waterways, which requires incorporation of freshwater pressure layers. As with NHMS, objective approach, using spatial predictive tools.

Questions raised about how we incorporate threatened species with these spatial classifications. Also, how does the system deal with species that do well in modified habitats?

The session was closed by Glen Lauder, raising the question of how the reporting process to the New Zealand Biodiversity Strategy objectives would work. Should Local government generate their own solution? Or should partnerships with DOC and or MfE be bolstered?



Landcare Internet Mapping Services – Nick Spencer

Committed to maintaining spatial co-ordinates for all core datasets. Mostly point based.

Developing Service based on ESRI technology to present both stand alone data (e.g NVS), as well as integrated outputs.

Issues raised include whether to stay with proprietary GIS, or open GIS, standards based interoperability, collaboration issues, and SVG (scaleable vector graphics).

End Of Day One Discussion

- Accessibility of biodiversity information for decision makers is an issue, particularly getting information of sufficient scale and quality to be useful for landholders. Related issues are interoperability and accessibility. Many participants sought a shared commitment and support for better access and

usability of biodiversity information, especially when it comes to helping people use “the stuff” locally. Question asked – ‘what level of resource is there to support deployment of biodiversity information resources to the community?’. Sub issues and related comments included:

- Need to integrate external (e.g., LENZ) with local data.
 - A number of regional forums are getting up and running around New Zealand, and could use a regional biodiversity website.
 - Even if do make information readily accessible there is no guarantee that landowners, communities and councils will actually find a use for it.
 - There’s a lot happening with biodiversity information within local government; but what level of resource is there to deploy this to local communities?
- The cost of information is a huge barrier: the way CRIs are set-up affects their policies on charging. Many groups cannot afford the fees for information and/or expert advice.
 - What information is important for landowners?: one person suggested information on a site’s values more than its ranking relative to other sites.
 - Quality issues: how can we improve quality and constantly improve storehouses (e.g., Museums).
 - There are information issues surrounding the delivery and evaluation of RMA s6(c) and any future Biodiversity National Policy Statement.
 - Easy to focus on classifications but also need to look at environmental change drivers.
 - Current datasets assume a lot about risk and what information to collect.
 - Need to very clear about what we are doing and what information is needed. Don’t collect information just for the sake of it. Sub issues and related comments included:
 - This is a significant issue and people will ‘get caned’ if we fail; the technology is fine but it’s how we use it that’s important.
 - Could adopt a regional approach to assessing and identifying information priorities.
 - These discussions are all part of the process of evolving and creating a better understanding and to enable us (the practitioners) to do the job.
 - Must make the new systems work for the landowners; haven’t paid this much attention to date. Have a significant opportunity to do this with the advice and condition funds.
 - The conversation is exciting and scary, and must be ongoing.

At the microscale need to inspire landowners and facilitate action. What information will facilitate that? National classifications and ranking systems may not be helpful.

No consistency in the way to interpret data. How do we enhance the useability of available information to assist decision-making. Local government needs to make DECISIONS and take ACTION.

Advice for advisors. Some example recipes for data use. GIS remains a barrier in terms of software, skill, and data (the order of \$600 each for likes of LCDB and LENZ remains too high for many voluntary groups). IP issues remain for many information sources outside the core sets CRI's and DOC have specifically committed to place in the public arena. CRI contracts default to IP remaining with CRI, together with the competitive way CRI's were established creates fundamental barrier to information sharing in the long term.

Should we be worried about making the information available to the lower echelons? Even most of local government does not have the capacity to interpret the data appropriately, and will just stuff it up. Should just ask DOC. (this view was not widely shared!)

Perceptions of what biodiversity is remain very very different among the participants. Several times the question was raised "where are we going with this". The picture of where we want to go with biodiversity remains fuzzy for many.

Barriers to progress in biodiversity management boil down to people issues, and resource allocation. Role of information should not be overstated.

Integrating data with GIS to create new perspectives is all very well, but still need good quality people to interpret that, especially at the microscale. Marriage of GIS and gumboots.

Keith Johnston – End of Day One windup

Referred to the "rolling conservation review" an evolving conversation. Are the ground workers and landowners missing out?

Importance of focus. Local government needs data and information to create their own focus. Still need big brains to interpret data, but the average boy and girl can play too. They may get it wrong sometimes, as did Matt McGlones giants of New Zealand's conservation history, but that's OK. With the opportunities we have to accept some risks.

TFBIS should appropriately focus on creating better understanding. More democratic tools, to complement the somewhat dictatorial set that seems to have evolved.

Get your applications in 1700/02/02/04

DAY TWO (11 November 2003)

ANZLIC (Australia New Zealand Land Information Council) - Steve Blake

Brief overview of the Council, 10 bosses including New Zealand and Australian central governments, and 8 Australian States. Natural resource information toolkit about to be released.

Success of the SDI (Spatial Data Initiative)

Session One – Government Information Programmes

- Action BioCommunity is developing useful material for local government; much of this is available on the ABC website (<http://www.biocommunity.org.nz/>).
- Important not to duplicate material across the different websites including www.doc.govt.nz ; www.biodiversity.govt.nz and www.biocommunity.org.nz)
- ABC is rolling out some products to assist regional councils; some material will be available on web.
- Indicators Programme emphasis has shifted to theme based Environmental Reporting, to focus on information needs for environmental management and governance, with reporting against targets. However there are no hard targets identified within the biodiversity theme nationally.

Action Biocommunity Update - Sarah Wilson

Sarah generated good audience interaction. Recognised the time pressure that practitioners (planners, ecologists) face in the regulatory environment. A lack of time can lead to ad hoc regulatory decision making.

Information systems to support regulatory functions will provide both contextual and site specific information in a user friendly format (e.g. red, amber green). Action Biocommunity aims to provide added capacity and reduced duplication via a LG toolbox, integrating all the elements;

- Bioregional approach
- Training
- Instrument mix
- Collaborative information networks
- Cross council integration
- Access by tool, region, or target audience
- Incorporate elements of the ANZLIC toolbox

Environmental Reporting – Kirsty Johnston

MfE is now focusing on reporting to a small core set of national scale indicators, meeting the needs of management and governance. The target audience will be central and local government, information will be generated through monitoring and reporting partnerships.

Previously the indicators programme was driven by science, and captured by IT. That delivered too many indicators, and not enough targets.

The reporting framework will be based on recent classifications, LENZ, REC and MEC.

In relation to biodiversity, indicators currently on the table include;

- Status of threatened spp.
- Distribution of selected threatened taxa
- Distribution and abundance of animal pests
- Distribution of weeds
- Legal protection (total, and by private, maori)
- Change in extent of indigenous classes
- Condition of selected ecosystems
- Fragmentation
- Extent of habitat without alien spp.

The TFBIS Programme – Joseph Arand

www.biodiversity.govt.nz Existence of the TFBIS Programme is a success in itself, acknowledging that information and data access is a problem for biodiversity management

Keen to receive feedback on the funding application process, and the information resources website. Is the steering committee representative enough?

The Programme is a little behind due to slippage, and \$300K underspent this year. Looking for robust applications next year. TFBIS funding is under review, and if worthwhile projects are not put up, then the money will simply be diverted elsewhere.

Session two – Natural areas, biodatabases and taxonomic databases

Natural Areas Information – Willie Shaw

Information on natural areas stands out as being the only information source discussed during the workshop that is not recommended to be moved into electronic format.

Some LG respondents believed it should be, and some regions have in fact transferred the data to GIS themselves. Reasons for not progressing PNA data to GIS are;

- Increased awareness can lead to intentional damage to RAP sites
- Spatial accuracy of mapped sites is variable.
- Data is incomplete for much of New Zealand
- Some data is up to 20 years old
- Many landowners who agreed to a survey were told data would be kept confidential.

In addition to PNA data, there continues to be a huge volume of additional site survey information generated by LG and consultants, often in relation to Resource Management Act requirements. This data is also collectively difficult to access.

Priorities for further survey work would be ecological districts not yet surveyed, with less than 20% indigenous cover remaining.

LCR noted that they held all available hard copy PNA reports.

- Assessment of how to make PNAP information available has been funded by TFBIS:
 - o PNAP survey distinguish themselves as the only national survey prepared to a nationally consistent standard
 - o PNAP reports are often difficult to access
 - o Limited publicity about the reports and landowners often don't know about the,
 - o Limited amount of PNAP information has been digitised
 - o Concern that the older reports are out of date
 - o Use of PNAP information in RMA S6c processes has sometimes been controversial
 - o Useful for prioritisation of biodiversity effort including local government pest control
 - o Future management options:
 - At the very least should have a central repository for all hard copy PNAP reports [Minimum requirement]
 - Available at low or no cost
 - Reports available on line as PDF
 - National database of RAP data but issues with database design, updating records (some report information is 20 years old)

- PNAP issues concerning:
 - o use of information – variability in how it is used around the country; also whether PNAP and other site information should lead or follow; see this information in the context of relationship building – need to get around the ‘kitchen table’ first.
 - o Controversy in the RMA environment has slowed down the completion of PNAP.
 - o Suggestion that useful to develop a consistent framework for councils to work within in identification of RMA s6c areas.
 - o Ecological Regions and Districts are an excellent geographic framework; LENZ is also very useful; and both have applications together or separately.
 - o Access of information and risks around private landowners could cripple us either way – cripple us if we don't have it and cripple us if we misuse it.

National Vegetation Databank (NVS) – Larry Burrows (LCR)

www.nvs.landcare.govt.nz An electronic archive exists with spatial and temporal tags for all NVS survey data. Use has been increasing rapidly, but mostly by DOC. Increased use has raised some access/security issues. Survey data is strongly biased to wards DOC estate.

NVS has been integrated with the plant names database, and links exist international vegetation databases.

NVS (National Vegetation Survey Databank)

- Does it provide a complete picture of New Zealand's plant biodiversity? Records are widely distributed but clumped information with dense coverage in some areas and gaps in others.
- Not clear where data off DOC land is going, as currently 'all over the place'. Recommend a national archive and propose NVS.
- Less than 10 people at the workshop currently use NVS, although uptake by DOC staff is reported to be increasing exponentially as contains much information relating to Conservation lands.

Taxonomic databases – Aaron Wilton (LCR)

A names database exists, with explicit relationships between historical and current variants. There are about 7 million records. <5% of arthropod records are databased, <20% for herbarium records, and 100% complete for fungi.

Future opportunities include the ability to powerfully combine spp. data with the likes of NVS. Development of ebiota, dynamically released as it becomes available. User specified format and detail.

Issues include improving access, dealing with the backlog of records, and future maintenance.

Presentations on the Landcare collections indicates that it can be well organised – has a quality that “yes we can get there”.

Bioweb – Malcolm Harrison (DOC)

The purpose of Bioweb is to provide information for natural and historic heritage management. The natural heritage component is by far dominant. What's where, what are we doing about it, are we making a difference?

The focus is on DOC land, but not exclusively. And do not wish to duplicate other datasources. Possibility that PNAP survey results could be put into Bioweb but not happening nationally; this may be occurring locally.

Bioweb is currently being reviewed and there will be increasing communication about future direction.

Completed modules;

- Weeds
- Threatened plants
- Blue duck
- Herpetofauna
- Casual observation
- Pest link (efforts)

In the pipeline;

- Kiwis
- Bats
- Marine mammals
- Invertebrates
- Spp. threat status
- Fungi, bacteria, fish??

Issues with bioweb include;

- Spatial enablement is not good.
- Not national coverage
- Institutional barriers
- Poor external web access
- Data integrity
- No register of DOC's own survey effort

Bird Distribution Atlas – Chris Robertson (OSNZ)

www.bird.org.nz The OSNZ has undertaken to update the presence/absence bird distribution data for New Zealand on a 10km square grid. Detail on habitat use is also included. The effort is 96% complete, and has taken in the order of \$8.5 million of volunteer effort. Subsurveys included to deal with seasonal variation.

Hard copy and web based access to the atlas.

Discussion around why point data was not collected, instead of dumbing the data down to 10km grids in the first instance. The Australian experience has been that point based data gets a lot more use, and has wider applicability.

OSNZ presentation on Bird Atlas indicate the high value of the general information. With this level of reporting the combined issues of privacy and confidentiality are not a significant problem. Useful to distinguish between science driven research and information relevant for reporting.

Freshwater Biodiversity Information System (FBIS) – Don Robertson & Steve Massey (NIWA)

Vision for online spatial access to all information. The freshwater biodatabase will include fish, invertebrates, submerged macrophytes and algae. Biodiversity and biosecurity stuff lumped together.

Currently much potential data is not accessible, and there is a “rising tide” of biodata. Risk of the data trap, costly inconsistent approach to data management in the face of declining funding. Want to avoid that.

FBIS should be operational by June 2004. NIWA welcomes receipt of data from external sources for inclusion in FBIS. Technical barriers to interoperability are not a big deal, and the NIWA product is not ESRI dependant. Much of the ongoing

management will involve dealing with data confidentiality, and managing variable user access.

Promises to deliver a system that will support, spatial and non-spatial searches, train of thought searches, and provide data integration capability.

Freshwater Information New Zealand (FINZ) – Mark Weatherhead NIWA

Stage 1 due June 2004 Mark presented a model for world domination, and if we can work together on these things, then we have a model for domination of the world by democracy...interesting aside.

FINZ will provide a spatial framework for freshwater related data, based on the REC, and using the ESRI Arc hydromodel (developed by hydrologists). Good use of off the shelf technology.

There is heaps of data going in, and this will remain a work in progress.

Full web based access.

Discussion of Freshwater Biodiversity Information Systems

- Competition between science providers cannot be ignored; it has limited cooperation in developing systems for managing freshwater data.
- Collaborative future may be possible although need to respect sensitivities of data owners.
- Positive examples of national repositories / databases (e.g., Freshwater fish) where contributors can elect whether information on record is confidential or not.
- Likely that technical interoperability is solvable, whereas some significant barriers in getting institutions working collaboratively.
- Some significant work to follow on freshwater databases; will be up to users whether they wish to use these tools.

GBIF and OBIS – NIWA

GBIF will be live by Xmas, and constitutes a distributed megascience facility, effectively providing a plumbing system to capture and connect the 1.5-2 billion specimen records held natural history collections. This frame work will mobilize and integrate primary biodiversity data at global and national scales. GBIF will not attempt to provide any interpretation, letting users build their own products based on the data.

New Zealand does not currently have a data node on GBIF, although it does contribute to OBIS, the marine component of GBIF.

There is great potential of these data sources in predictive modeling, and other biodiversity management issues.

This presentation generated considerable discussion.

Can GBIF style data sharing facilitate data availability? LG experience is that it takes years for the science process to do its thing with data before it (maybe) gets released. How much data do we actually need to progress? Is the focus too much on data, and too little on making a difference? Responses to that question included, data needs variable depending on role, another response in support, keep a tight focus, provide the common plumbing, the mechanism to provide a solution, then let users build their own solutions....keep it simple.

Why do we have a scattering of national datasets? Would it be more effective to focus New Zealand efforts relating to species databases to GBIF structure?

Barriers are IP, confidentiality. Partnerships need to be sorted out first.

- Concerns raised about the potential massive scale of these projects, and important to consider whether the end result is in fact going to be useful. Come back to the basic question: what data do we need and what will we use it for?
- GBIF architecture could potentially serve local purposes.
- Database networking raises issues concerning intellectual property; partnerships; and the scope for new and open frameworks to facilitate data sharing.
- Note policy work by MORST on intellectual property; information may become the property of the contractor.
- Strong interest and support for furthering GBIF involvement.

End of Day Two

Outcomes of the end of day discussion seemed to revolve around collaborative groupings.

Steve Markham suggested a LG collaborative to further information management with respect to decisions/actions.

Lindsay Chadderton keen to progress a FWENZ working group, and also widely supported.

Jim Fretwell suggested technical IT barriers may not be a big issue, and a technical group should be able to sort that out in short order.

Other needs identified were;

- Vehicles for getting information awareness to all 16 regional councils, and perhaps TLA's... regional info forums?
- What about the community level information network?
- TFBIS review of management and science.

APPENDIX FOUR: RESOURCES TO SHARE

A Websites

The workshop identified a number of useful web-based resources of interest to the participants. These resources are identified below for future reference:

www.biodiversity.govt.nz This is the Government's biodiversity website, and focuses on implementation of the New Zealand Biodiversity Strategy. The site includes information about the strategy as a whole, and implementation of its various components.

www.biodiversity.govt.nz/resources/index.html Information Resources section of the NZBS website. Includes links to a range of biodiversity information including legislation, institutions, classifications, collections, survey data, guidance material, stakeholder contacts, publications and recommended reading. .

www.doc.govt.nz

www.biocommunity.org.nz Action Biocommunity

www.bird.org.nz (OSNZ, and bird atlas)

www.bush.org.nz (NZERN site)

B Registry of Data/Information

Dataset	Agency	Contact	Availability	Cost
Land Environments New Zealand (LENZ) Classification	LCR	rutledged@landcare.cri.nz	available	Nominal
LENZ underlying data	LCR	rutledged@landcare.cri.nz	available	Nominal
Freshwater information New Zealand (FINZ)	NIWA	m.weatherhead@niwa.co.nz	Development (2004)	Nil
Freshwater Biodata Information System (FBIS)	NIWA	s.massey@niwa.co.nz	Development (2004)	Nil
National Vegetation Databank (NVS)	LCR	burrowsl@landcare.co.nz	available	Nil
GBIF	No national node yet	http://www.gbif.org	available	Nil
PIPI community database	NZERN	www.bush.org.nz	available	Nil
Freshwater Environments New Zealand (FWENZ)	DOC	lchadderton@doc.govt.nz	Development (2004 onwards)	Nil
Land Cover Database (LCDB 1&2)	MfE/Terralink		1 available, 2 in prep.	Nominal
Landcover classification (Ecosat)	LCR	dymondj@landcare.co.nz	Ongoing	? region funded

APPENDIX FIVE: ISSUES RAISED BY PARTICIPANTS

This appendix presents participant responses to the question, “What do you think is the key issue constraining biodiversity information in New Zealand?” Responses are broadly grouped into four issues, tabulated below.

Issue 1: Data access and integration issues

Make collaboration happen instead of talking about it. IP barriers etc. Someone needs to drive this with leadership
No national plan for information sharing
Development of information systems is easy compared to ongoing maintenance of databases and collections
Reduce duplication of effort
Key is interoperability and distributed systems
Central co-ordination standards
Need international standards meeting
Dialogue debate and real consultation between NIWA and end users
As an information custodian, what do I need to do to be ready for likes of GBIF? Standards? Infrastructure?
Need many data nodes at local level, rather than just central store houses.
Review custodianship
National bird database
Expect agreement that biodiversity data should be freely available to all via web technology
Lack of co-ordination, no one knows what everyone else is doing, or how to integrate towards a common goal
Much data still not in public domain
Better interagency co-operation so LG is able to readily access all datasets
Coordinated information collection
Funding model for TFBIS Programme is short-term. We need long term support for systems and system integration
Metadata and data interchange standards - understanding and utilisation
Co-coordinated interagency approach, standards, data sharing
Co-ordination/integration, we all seem to want it, but are NOT heading in the right direction.
Pressures of time and money?
Interface of FBIS/FINZ with DOC systems (e.g. FWENZ)
How do we link taxonomic data to the systems we have been hearing about today
Interface of FBIS/FINZ with DOC systems (e.g. FWENZ)
Data and information sharing, and minimising duplication of effort
One stop shop spatial biodiversity
What is the TFBIS Programme's overriding objective? A one stop shop?
Linking, integrating data held by different agencies

Issue 2: Local Government, NGO's, Iwi, landowners may not have the capacity to utilise available information

More communication between users and providers
Analysis of RAP's protected in the past and now protected
Development of FWENZ pressure layers
Focus on drivers of environment rather than classification
Include karst, geothermal, and land water interface systems
Appropriate tools to analyse data
Plotting spp. distribution on LENZ LCDB, interface?

We have significant progress among the giants, clear direction not yet available for regional and local government
How do we ensure the people doing the work have enough information to do the job?
Knowing how to interpret info without compromising ecological integrity
It is difficult for landowners and advisors to easily understand the biodiversity context of places, especially private land. Build a web accessible tool.
Getting biodiversity values to the public so they will be willing participants in management
Accessibility and delivery of info that is sufficient for good decision makers by those that make decisions that matter
Best practice at local level?
Local government participation in spatial biodiversity information to generate effective action
Still need good quality people to interpret the info, not all LG has that resource
Access to GIS, still not a common tool, so a lot of uncertainty...Boffins!
Understanding available systems, how can they be used by LG, are there processes to aid this?
How do we process data to a level suitable for landowners?
Relationship of local planning to ecological knowledge, lack of commitment to biodiversity conservation - often biosecurity related
Information systems that support quality decision making. The issue, interpretation, action!
How can we ensure the most important person, the landowner, is kept as a focus?
Landowner access to information to assess biodiversity value under their control
Linking to multiple values of landowners, and multiple benefits of preserving biodiversity
Helping landowners understand the value of natural heritage on their land
Landowner rights
Fear of LG to undertake SNA survey due to ratepayer backlash

Issue 3: How do we capture data collected at a local level, and at a fine spatial scale?

Getting local biodiversity information available publicly
Interface with LG data sets
No national plan for national evaluation (field survey?) biodiversity information management
Continuation of ecological survey
Co-coordinating collection databasing efforts....GBIF?
What about our unexplored biota? Lack of workers and resources to continue.
What about the microdata? We need that as well as the big picture stuff
Great ideas on mapping environmental factors but very little on exploring and documenting the biota that lives there
Few people interested in the finer ecological details

Issue 4: The data and information actually needed for biodiversity conservation are not well defined

Still need to define information needs of direct use to the greater "we"
What questions are we trying to answer? Then what info do we really need? Do we need it all?
NPS biodiversity?

APPENDIX SIX: PARTICIPANT RECOMMENDATIONS FOR TFBIS PROGRAMME FUNDED PROJECTS

This appendix presents participant responses to the question, “What specific projects do you think the TFBIS Programme should fund?”

Proposed projects	Frequency
Getting awareness of available information to TA's and NGO's	4
Register of collection data, what's databased, and what is not. Then create a portal to make it more available	4
GBIF style biodiversity data access	3
Protocols for open access. If IP/ownership issues can't be resolved, TFBIS will not become an effective reality (applies DOC, CRI's and LG)	3
Photos database	3
Various councils contributing developed systems for uptake by other agencies	2
Facilitate a community of practice around LG making effective use of information systems	2
National registry of databases	2
Better availability of PNAP data	2
Development of standards	2
Person to negotiate with DOC and CRI's on data sharing	1
Funding for person with enough technical and biodiversity knowledge to bring together all the information fragments into a cohesive system	1
Sharing of data and analytical ability	1
Standards to underpin use of GBIF system ie. Evaluation of EML vs ABCD	1
Getting everyone to agree to use of darwin core or similar as a place to start co-operation	1
Relationship with office of treaty settlements to incorporate data layers from settlement process	1
Analysis of information need of hands on practitioners	1
Small technological "proofs of concept" of grand ideas...focus the mind on real issues	1
NZ spatial data initiative - provide the underlying framework and ground rules	1
Integrated use of classifications/frameworks LENZ, REC etc	1
Notornis articles online	1
Making DOC data accessible	1
Co-ordination of the projects being undertaken	1
Ordering local bodies to make ecological information publicly available	1
Getting PNAP and ecological reports as publicly available .PDF files	1
Spp. distribution maps, national fauna including threatened spp. distribution	1
Distributed network, common system	1
Process working groups for particular issues, IP, systems, Data needs etc	1
Set of projects based on needs identified at workshops	1
portal to bring together all environmental datasets in NZ and PUBLICISING this. Followed by report on what's missing	1
Process plan (road map) for key agencies to develop effective biodiversity information management, specifically for local government	1
Distill the quick fixes and obvious strategic direction for TFBIS to promote	1
Feedback to participants and non-participants	1
Interoperability, technical workshops	1
Interoperability between all collections, other taxonomic and ecological databases	1
Ecosat Cover for all of NZ	1
NGO representation on the steering group	1

Review data held by TLA's	1
Digitisation of PNAP, and ongoing survey work	1
Funding for "librarian" for 1-5 years for on ground people to contact to guide them to information	1
Focus on finishing some of the big projects that have been started	1
More spatial capture of primary data, visualisation, mapping and analysis tools	1
Accessibility infrastructure, e.g. NVS	1
Promoting what we already have	1
Using current portals to support community building	1
Improving the accuracy of REC	1
Technical steering group of local, regional, and central government working on biodiversity priority and decision support systems	1
Get species 2000 useable	1
GBIF, LCR and NIWA to keep the ball rolling	1
Web delivery of biodiversity info beyond metadata	1
Centralisation of data to single "front end" but data served from source	1
Taxonomic names database	1

APPENDIX SEVEN: PARTICIPANT OPINIONS ON WHAT, AND WHO, WAS MISSING FROM THE WORKSHOP

This appendix presents participant responses to the two questions, “What do you think was missing in the workshop?” And, “Who do you think was missing from the workshop?”

What do you think was missing in the workshop?

More opportunity to discuss solutions to a point of conclusion or progress outcome.	6
Nothing, great job	4
Too much presentation, too little time discussing solutions	3
Role of Maori, historical and cultural biodiversity	2
NGO view of the world and information systems they drive, e.g. NZERN PIPI database	2
Inclusion of MWRC Ecobase presentation	1
Social/cultural, central and local govt. not the only managers. Iwi, fed farmers etc.?	1
An overall set of recommendations to TFBIS Programme for integrating biodiversity data nationwide	1
Overview of other data sets e.g. in relation to soils, geology, vegetation	1
Discussion on use of the data, who wants to use it, what is missing or hard to access.	
People and processes	1
Examples of actual use of data, outcomes, making a difference?	1
Apply to TFBIS Programme for contracting out data capture of key regional datasets?	
Money for website developer to make regional data available	1
Did not clarify interparty actions needed as a top priority	1
Input from universities	1
Timekeeping, and more clearly defined goals	1
Clear identification of what biodiversity users want and what their priorities are	1
Use of the data?	1
Actual solutions, but seems they may come with time	1
Compiled list of databases available	1
Lack of concrete plan for integration, standards etc	1
More discussion in each session on role of TFBIS Programme	1
What about NABIS, land coast interface	1
DOC IMU staff, engaged, listening, interacting with the participants	1
A real consideration of data generated outside the govt sector	1
How do we fill the gaps in our taxonomic data?	1
More inspirational presenters	1
Contribution from the ground workers	1

Who do you think was missing from the workshop?	Frequency
Iwi	3
Fed farmers	3
Universities	3
DOC data custodians/senior IT	3
District council representatives	2
Elaine Wright, DOC	2
Government representation - people funding this stuff	2
People who have implemented bits of the dream	2
Senior LINZ staff	2
FRST and MRST	2
Ecologists from our council	1
All IT staff working on biodiversity projects in their area	1
Landowner reps	1
Kevin Hackwell, Barry Weber (F&B)	1
GIS people Wayne Stiven and a DOC GIS developer	1
Terrestrial freshwater science researchers re ecosystem evaluation (value, risk, condition, trend)	1
LINZ (spatial data infrastructure)	1
NGO's	1
Key person DOC IMU (e.g. Channa)	1
Doc waikato Angela Murray, Oliver Overdyke, John Gumbley	1
Judith Roper Lyndsay	1
Botanical societies	1
Shona Myers	1
Alan Somerville (CTMS rotorua)	1
International experts who have made this work	1
More biodiversity scientists such as Matt McGlone	1
LGNZ	1
Mark Davis	1
DOC Conservancy planner	1
DOC NHMS technical and user group members	1
Media person start selling possibilities to newspapers	1
Brian Patrick Otago museum, Paul Schofield Canterbury museum	1
MAF	1

APPENDIX EIGHT: ACRONYMS

CRI	Crown Research Institute
DOC	Department of Conservation
FRST	Foundation for Research Science and Technology
FWENZ	Freshwater Environments New Zealand
GBIF	Global Biodiversity information Facility
IMS	Internet Mapping Server
IP	Intellectual Property
IT	Information Technology
LENZ	Land Environments New Zealand
LG	Local Government
MEC	Marine Environments Classification
OBIS	Ocean Biodiversity Information System
PNAP	Protected Natural Areas Programme
RAP	Recommended Area for Protection (based on PNAP)
REC	River Environments Classification
SMF	Sustainable Management Fund