Biodiversity Information Management Forum 2012 Report

June 2012

Theme: making a difference

SANBI's Biodiversity Advisor
http://biodiversityadvisor.sanbi.org

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1. Executive Summary

The 2012 SANBI Biodiversity Information Management Forum (BIMF) was co-hosted by the Working for Water Programme (WfW), Department of Environmental Affairs (DEA) and the Department of Science and Technology (DST) through the South African Biodiversity Information Facility (SABIF).

The BIMF is the only national platform dedicated to discussing biodiversity information management issues. This fourth BIMF was held at the Old Mutual Conference Centre at Kirstenbosch on 12 and 13 June 2012.

The striking characteristic of the 2012 BIMF was the range of local and international organisations that were represented. It was a tremendous opportunity to network and draw on the expertise of leaders in the field. The maturing of the field over the past 5 years means that there are a wide range of complex issues requiring attention.

Dr Tanya Abrahamse, CEO of SANBI, focused on the need to make biodiversity information available in order to democratise the sector when she opened the Forum. The keynote address by Professor Jon Hutton of the World Conservation Monitoring Council of the United Nations Environment Programme raised some controversial issues regarding the data management chain, including the benefits of restricting databases for commercial reasons and questioning the priorities of taxonomists. Mr Arthur Chapman of the Australian Biodiversity Information Sciences emphasised the need for collaboration to speed up scientific endeavour.

Throughout the Forum there was an emphasis on core scientific and taxonomic skills forming the basis of biodiversity information.

The Biodiversity Heritage Library participation brought a focus on digitising biodiversity literature and enriched the forum through attracting a number of international participants, particularly in the Africa region.

The launch of iSpot southern Africa at the BIMF celebrated the potential of this initiative to broaden biodiversity science to involve ordinary people in a fun way.

The programme included plenary sessions, parallel presentation sessions, working sessions in content areas, workshops and training. A highlight of the workshops was the SABIF Data Fitness for Use training given by Arthur Chapman.

2. Participation

There were 29 South African institutions and 16 international institutions represented at the BIMF. See Annexure 1 for the list of participants.

The core programme was on 12 and 13 June, with training workshops and related events throughout the week. See Annexure 2 for the programme and Annexure 3 for the participant evaluation report.

3. Plenary sessions

The plenary sessions of the BIMF focused on issues of relevance to all participants. This included input by keynote speakers, the round table discussion on "achievements and challenges in ensuring biodiversity data is relevant" and the on-the-couch-session "opportunities and development in building biodiversity informatics capacity".

The conference was opened by Dr. Tanya Abrahamse, SANBI CEO. She emphasised the role of information management practitioners in democratising the biodiversity sector and ensuring information is able to be used by everybody, from high school students through to global experts. In the context of economic meltdown, budget cuts and national priorities such as health and housing, we all need ensure our work contributes to making the case for biodiversity's contribution to social and economic development. She reflected that since 2007 the focus in the Biodiversity Information Management Forums has been on capacity building and a significant step is the Memorandum of Understanding signed in March this year between SANBI and the University of the Western Cape launching a post graduate research programme to build biodiversity informatics capacity.

3.1. Keynote addresses

3.1.1. "Managing biodiversity information: the good, the bad and the ugly" by Professor Jon Hutton of the United Nations Environment Programme (UNEP): World Conservation Monitoring Council (WCMC).

Presentation slides are available on the Biodiversity Advisor.

Prof. Hutton looked at the good, the bad and the ugly with regard to the data management chain, covering data gathering, data organising, data sharing, synthesis and analysis, and tools for decisions. He emphasised the views expressed in this talk are personal and do not represent the WCMC.

He questioned whether taxonomists are helping or hindering biodiversity data management processes. Of the estimated 8.7 million species on earth, approximately 1.2 million have been named. Descriptive taxonomy is desperately needed and taxonomists have been spending huge amounts of time and effort on other issues such as the great acacia debate. Reclassifying and renaming plays havoc with conservation tools. However, it is positive that in last year the CBD has prioritised the need for taxonomists to be developing a comprehensive coverage of known species at the global level.

Prof. Hutton argued that attitudes around data sharing are simplistic. He is worried about a future where the freely available data is of extremely poor quality (basically rubbish) and the valuable data is locked up behind tables. He used the example of the World Database on Protected Areas to show that restricting the database for commercial reasons can be successful in leveraging investment from companies and result in a substantially improved database. He acknowledges that there are people who consider this commercialisation 'ugly'.

He concluded that the perfect is the enemy of the good and that we make a mistake in not making data available because it is not perfect, when there is nothing wrong with starting at a coarse scale.

3.1.2. "Collaborative science – it does make a difference" by Mr. Arthur Chapman of Australian Biodiversity Information Services

Presentation slides are available on the Biodiversity Advisor.

Arthur Chapman showed us that after 260 years of scientific endeavour only about 17% of the world's biota are described which at the present rate will take another 1500 years. He argues that collaboration can speed up our science, with citizens making a substantial contribution and freeing up scientists to do less mundane tasks and more science.

3.2. Achievements and challenges in ensuring biodiversity data is relevant

The round table session was facilitated by Mr. Doug Reeler from the Community Development Resource Association (CDRA).

Discussion participants were: Mr. Kiruben Naicker (DEA); Professor Jon Hutton (UNEP-WCMC); Dr. John Donaldson (SANBI – Applied Biodiversity Research); Mr. Selwyn Willoughby (SANBI – Biodiversity Information Management); Mr. Ahmed Khan (DEA Natural Resources Management) and Dr. Toufiek Samaai (DEA Oceans and Coasts)

The following key points that emerged from the discussion and the input of the panellists:

- Biodiversity information and tools need to be based on sound scientific data grounded in taxonomy and research. Uncertainty should be expressed where data is not of a good quality. An accompanying narrative and context can add value to the data.
- Information should be part of a monitoring framework so that site level activities are monitored and cascade up to influence policy and vice versa.
- We should be cautious not to limit ourselves through defining the needs of end users and remember that there are a variety of end users who are using information for a range of purposes and industries.

3.3. Opportunities and development in building biodiversity informatics capacity

The “on the couch” session was facilitated by Mr. Doug Reeler from the CDRA.

On the couch were: Dr. Andrew Kaniki (National Research Foundation); Dr. Eureta Rosenberg (GreenMatter); Mr. Martin Cocks (University of the Western Cape); Ms. Paula Hathorn (SANBI) and Ms. Carmel Mbizvo (SANBI)

Group discussions focused on the following topics:

1. *Developing a research agenda for biodiversity informatics (including key questions for research)*
2. *How can GreenMatter contribute to capacity building in this field*
3. *What are the priorities for work-place-based short courses*
4. *How do we use the UWC research programme to catalyse further national and regional capacity initiatives*
5. *Open (the group can select one of the above, or a relevant topic of their choice)*

For detailed notes of this session see Annexure 4.

4. iSpot launch

The southern African citizen science portal, iSpot, was launched by Ms. Carmel Mbizvo of SANBI at Moyo, Kirstenbosch. iSpot draws ordinary citizens into scientific research and contributes to the democratisation of science. It can be a significant contribution to science through growing the numbers of people involved in biodiversity observation and monitoring.

5. Parallel sessions

Where there were presentations in the parallel sessions the title of the presentation and name of the presenter (rather than all relevant authors) are listed. Presentation slides are available on the Biodiversity Advisor. See Annexure 5 for abstracts of presentations.

5.1. Technology tools and innovation

5.1.1. iSpot southern Africa- SANBI’s exciting new citizen science initiative.
Sarah-Leigh Hutchinson, SANBI.

5.1.2. Using georeferencing tools to enrich biodiversity data.
Burgert Muller, KwaZulu-Natal Museum.

5.1.3. Addressing key scientific questions through the development of tools that use multiple data resources.
Les Powrie, Applied Biodiversity Research Division (and National Vegetation Map Committee), SANBI.

5.1.4. Southern African Plant Invader Atlas: an essential resource for Invasive Species management.
Philip Ivey, Early Detection Rapid Response, SANBI.

5.1.5. Cybertracking emerging invasive alien species – field trials in KZN.
Ntombifuthi Mthimkhulu, EDRR, SANBI.

5.1.6. GIS and conservation monitoring and evaluation tools.
Stefan Steenekamp, Peace Parks Foundation.

5.1.7. SAEON Streamflow & Weather Database.
Victoria Goodall, SAEON.

5.1.8. The future of SANBI's publications.
Louisa Liebenberg, SANBI Publications.

5.1.9. Open Global Resource of Literature for African Biodiversity Scientists.
William Ulate, Global BHL Project Coordinator.

5.2. Showcasing data digitisation and application

5.2.1. The forgotten Pollinators: Filling a Biodiversity Information Gap.
Jonathan F. Colville, Applied Biodiversity Research Division, SANBI.

5.2.2. Data in action: taking parasitology from the arcane to the applied.
Graeme Cumming, Percy Fitzpatrick Institute, University of Cape Town.

5.2.3. Unlocking the treasures of the deep; digitization of Iziko South African Museum's Marine Biology data.
Wayne Florence, Iziko South African Museum.

5.2.4. Data capture: the Durban Natural Science Museum story.
Kirstin Williams, Durban Natural Science Museum.

5.2.5. Unlocking a wealth of biodiversity informatics: state of digitization of Iziko South African Museum entomology collection.
Simon van Noort, Iziko South African Museum.

5.2.6. Capturing Africa's Dung beetle diversity.
Angelika Switala, Scarab Research Group, University of Pretoria.

5.2.7. Digitization of scientific material for research and access to indigenous knowledge.
Ria Groenewald, University of Pretoria Library Services.

5.2.8. From 34 databases to just one: lessons from the successful conversion to Specify at Iziko Museums.
Hamish Robertson, Iziko Museums.

5.2.9. Biodiversity Information in North Africa.
Mohamed Elyes Kchouk, NAFRINET (The North African Partnership for Taxonomy).

5.3. Biodiversity monitoring

5.3.1. The basis of a GM-related monitoring program in South Africa: what to monitor and why?
James Rhodes, Biosafety South Africa.

5.3.2. An indicator-based approach to assessing the effects of fishing on marine ecosystems across the globe.
Lynne Shannon, Marine Research Institute, University of Cape Town.

5.3.3. Alien and invasive marine animals in South Africa.
Prof Charles Griffiths, Zoology Department and Centre for Invasion Biology, University of Cape Town.

5.3.4. The Working for Water Programme: A decade in biocontrol implementation.
Debbie Sharp, Natural Resource Programmes, Department of Environmental Affairs .

5.3.5. The status of aquatic weed biocontrol in South Africa – an assessment of long-term monitoring data, and the need for a functional database.
Julie Coetzee, Department of Zoology and Entomology, Rhodes University.

5.3.6. Management of information on biocontrol agents for invasive alien plants in South Africa.
Hildegard Klein, ARC-Plant Protection Research Institute.

5.4. Landuse planning and EIA

Ms. Sediqa Khatieb of SANBI gave a Landuse Planning presentation which is available on the Biodiversity Advisor website.

Mr. Jeffrey Manuel of SANBI gave a live demonstration of the EIA test site EIA Biodiversity Data Publishing Portal.

5.5. Linking local to global: the importance of answering your own questions first

Craig Mills of UNEP: WCMC facilitated this session which focused on 3 areas:

1) *Case study of current technology in managing and maintaining global datasets*
2) *The national value of contributing to global datasets, and the value of using global data*
3) *Visualising and designing systems for the modern web.*

His presentation is too large to load onto the Biodiversity Advisor website, but is available on request.

6. Posters

The following posters were on display at the Forum:

Biodiversity Heritage Library	Missouri Botanical Garden	Chris Freeland
Progress in the implementation of Specify in South Africa, including the Museum Data Migration project	NRF/SAIAB	Willem Coetzer

Database of South African seaweeds, Phase 3 – The Pocock Collection	Rhodes University	Neil Griffin
The Albany Museum's FWI National Aquatic Invertebrate Collection and its ongoing development	Albany Museum	Ferdy de Moor
The successful digitization of fungal specimens holdings in the PREM collection	ARC-Plant Protection Research Institute	Riana Jacobs
Digitization of the KwaZulu-Natal Museum Diptera Collection	KwaZulu-Natal Museum	Burgert Muller
Databasing of the Terrestrial Insect Collections of the Albany Museum	Albany Museum, Makana Biodiversity Centre	Sarah Gess

7. Working sessions in content areas

7.1. Invasive species

During the Invasive Species data management session the stakeholders addressed the question: "What questions do we want to be able to answer about invasive alien species in 2 years, 5 years, 10 years and 20 years from now?" For example some of the questions to be answered in 2 years were "How can we share the data quickly and efficiently?" and "Where are invasions and which are the priority areas with regard to invasives?"

The session revealed a number of key questions that need to be answered and in order to answer these questions data management on invasive species needs to be addressed as follows:

- *Existing datasets and databases need to be evaluated to see whether these serve our needs and purposes.*
- *Data should be relevant and collated through adequate standardized processes.*
- *Tools and processes need to be developed in order to generate adequate data to answer these questions.*
- *We need to develop measurable indicators to show our efficacy of our operations and how we meet our mandates.*
- *Data sharing and collaboration between key stakeholders is imperative and needs to be initiated and maintained.*
- *Business Intelligence must be incorporated, which identifies and answers all relevant questions to our operations.*
- *A centralised data warehouse (accessible to key users and administered by skilled staff - which stores all relevant data) needs to be developed with effective processes and methods (which promote the collation of adequate data) in place to generate adequate data to answer these questions.*

See Annexure 6 for the full table of questions and discussion.

7.2. Marine

Presenters:
Prof. Charles Griffiths gave a presentation on the State of Knowledge of marine biodiversity in South Africa.
Dr. Kerry Sink spoke about marine priority research areas, indicating which could be supported through improved data sharing or mobilisation. Dr. Sink led the compilation of the marine and coastal technical report for the National Biodiversity Assessment 2011.

The discussion looked at data mobilisation opportunities in the marine sector and the development of a marine thematic Node for SABIF. Species level data is poor and it would be good to develop and implement a strategy to prioritise and catalyse regional or national conservation assessments for marine species. The first step is an inventory of marine species or more checklists for marine species.

Some key priority datasets housed at various organisations were identified. These data sets are relevant to mobilising and sharing data and could contribute to national strategic initiatives or science and policy objectives. They would contribute to the data mobilisation strategy and action plan to be developed by SABIF. It was decided that this was the start of a conversation to engage the marine community and we also need to understand what the end-user of marine data needs.

It was agreed a SANBI co-ordinated task team representing key marine data holding institutes would be established. The task team will look at biodiversity information requirements of the marine community and the immediate priorities for data mobilisation. A data landscape document will be developed which look at what datasets are held by various institutes across the country. This will support efforts to prioritise datasets to be made accessible via the SABIF portal in order to fulfil SANBI's obligation to collect, generate, process, coordinate and disseminate information about biodiversity for the country, in order to support science, policy and decision making processes. This is a novel approach, in which knowledge brokering is used to engage with decision makers as to what data they need, and then on the other end engage with the community to understand what data is available and digital, what the gaps are, and therefore what can be identified to mobilise/capture. It is intended that this work ties into the next rollout of the NBA.

7.3. Herbaria and museums

The Herbaria and museums session, chaired by Michelle Hamer, discussed priorities for digitization, data quality considerations and mechanisms for ensuring taxonomic data quality. It was agreed that the highest priority is material that has been identified and curated, but is not digitised, and that it is preferable to focus on a taxon and digitise across institutions , rather than to develop incomplete data sets for each institution. See Annexure 7 for the notes of the discussion.

7.4. Libraries

This session was attended by a group from BHL Global, African invitees, attendees from Iziko, the National Archives and SANBI staff. After the introduction, it was decided that we should plan for the 2 day BHL Africa workshop. The discussion was around the following:

The scientists/users of BHL

- *Input and buy-in from scientist would be of the utmost importance.*
- *They need to understand the worth of BHL Africa for their research.*
- *We as BHL Africa need to determine their needs.*
- *An internal awareness campaign is one way of informing staff about the value of BHL Africa*

Where do we start?

- *First group of publications that can be digitized, will be each institute's own publications and reports*
- *Rare collections: identify those publications that are not on BHL already. Listserve is a useful tool supplied by BHL where you can bid to do a publication. This cut out duplication.*
- *All gray material that you can identify such as maps, illustrations, microfiche etc.*
- *Books that are out of print and in great demand*

BHL Africa

- *Need to develop collectively as a group a model and action plan that is suitable for Africa.*
- *A platform or portal will be needed where all material will be made available. This platform will serve as the gateway to African biodiversity*
- *Funding will start at institutional level. This will be part of each member of BHL Africa's commitment to the project.*

7.5. Land cover

Presenters:
Ms. Julie Lovesay from the Chief Directorate: National Geo-spatial Information (NGI) presenting on the current process being followed for updating the National land cover.
Dr. Melanie Lück-Vogel from the CSIR relating a remote sensing based ecosystem intactness index to field observations

Discussion:
The group was concerned that the National land cover would not meet all their needs, however the intactness index also did not offer the land cover solution that they were looking for. It was decided that a mix of the two methods would be a good option to investigate.
The following recommendations were made to NGI to ensure that their land cover meets biodiversity needs.

- *Both CartoSat and ResourceSat (10 – 20m resolution and returning to the same area every 30 – 40 days) are good satellites to gather data from for land cover mapping*
- *When undertaking land cover mapping for biodiversity it is vitally important to include rainfall data, this could be gathered from MODIS*

- *NGI should publicise what projection the National land cover will be distributed in*
- *The following minimum resolutions are required for these applications:*
    - *Estuary mapping: 5 m*
    - *Invasives mapping: 2m*
    - *Wetlands: 0.25ha*
- *Intervals between aerial photos used in mapping land cover should be approximately 3 years*
- *Wetlands should not be mapped without first gathering seasonal data showing both summer and winter views of the same area (MODIS could be used for this)*

8. Associated workshops and events

8.1. SABIF data fitness for use training

Arthur Chapman from the Australian Biodiversity Information Services facilitated training on 14 and 15 June. See Annexure 8 for an evaluation report.

8.2. BGIS training

Martin Cocks and Sediqa Khatieb facilitated BGIS website training on11 June. See Annexure 9 for an evaluation report.

8.3. Biodiversity Heritage Library Africa meeting

Representatives from a number of African biodiversity related institutions and BHL staff members came together to establish a project plan for co-ordinated biodiversity literature digitization. See Annexure 10 for the full report.

8.4. Biodiversity Monitoring workshop

Presenters: Heather Terrapon and Smiso Bhengu

Activity:
Delegates were divided into 2 teams, each team was assigned a fictional country and proceeded to work through the process of developing and presenting a biodiversity indicator for the country. The series of exercises (as created by the UNEP: WCMC) discussed the principles involved in indicator development and allowed the delegates to practice and present their work. Each group benefitted from hands on instruction and much fun and laughter was had by all. The delegates were sent away with all the exercise material as well as a framework for biodiversity indicator development; this framework can be found on www.bipnational.net .

8.5. iSpot BioBlitz

A group of BIMF participants joined the BioBlitz the Kenilworth Racecourse Conservation Area (KRCA). The exciting species of the day was *Hessea cinnamomea* which was spotted flowering

at the KRCA for the first time in 70 years. A total of 172 observations were submitted to iSpot from the BioBlitz.

9. List of annexures

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