The Foundational Biodiversity Information Programme

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Timelines of the FBIP

• 2011 – DST initiated the development of a programme to incorporate SABIF and SABi, and SA-IBOL and SA-EOL – all initiatives related to taxonomy, primary biodiversity data
• 2011-2012 – consultation, proposal development
• 2013 – first FBIP call for funding; first large project funded
• 2015, 2016, 2017: funding calls and 107 projects funded to date
• 2015, 2016, 2017 - FBIP Forum
• Training workshops / discussion groups – linked to Forum and for Specify
How the FBIP works

- Funded through the **Department of Science & Technology**
- Grants and granting process managed by the **NRF**
- Overall Programme leadership and management; data management and dissemination – **SANBI**
- **Steering Committee** – provides strategic guidance, monitors progress. Includes representatives from professional societies (ZSSA, SAAB, ESSA, SASSB, SAMS), for collection institutions, data management (SABIF), NRF, SANBI, and relevant government departments: DEA, DAFF, DST (Chair)
- **Staffing**: 1 full time Co-ordinator, (Lita Pauw) 1 part-time Manager (Michelle Hamer), 1 part-time Science Communication Officer (Dane McDonald), 1 full-time Data Manager (to be appointed)
Why was the FBIP established?

1. Misalignment in what information is generated by researchers and what is needed and used by decision-makers.

2. Data generated through research projects or by digitising collections remain with researchers or within institutions. **Loss and/or inaccessibility of data** (results in recollection of the same data, low return on investment for funders, slow progress in knowledge generation/weak basis for decision-making).

3. Funding for foundational biodiversity information is not easy to attract on a sustained basis.
Challenges that we need to address

1. Alignment between needs and what is generated

2. Providing access to co-ordinated data that is needed and can be reused in other projects

3. Placing programme in context of national and international priorities
The FBIP aim

• The intention of the FBIP is to generate, manage and disseminate appropriate foundational biodiversity information as the basis for research which can catalyse the bio-economy, and for decision-making which will promote human well-being.

• Overall themes: global change and the bio-economy (green economy)
Objectives of the FBIP

1. Generate knowledge and mobilise existing data to address priority knowledge / information gaps for decision-making or the bioeconomy.

2. Contribute content to an integrated information management and dissemination system to provide long-term access to outputs from the FBIP.

3. To attract, develop and upskill people to ensure appropriate capacity for foundational biodiversity knowledge generation, dissemination and application.

4. To develop an understanding of best practices for ensuring that foundational biodiversity knowledge generated and disseminated is taken up for use and application in decision-making and the bioeconomy.
Scope of FBIP

Data / knowledge generation, mobilization and co-ordination:

• **Species occurrence** (biodiversity surveys, capture of data from specimens in collections),
• **Species identity** (DNA barcoding, other identification tools),
• **Population abundance** (quantified surveys),
• **Species attributes** – photos / illustrations, biology, importance to people including cultural significance, functional role in ecosystem, interactions with other species.

• Plants, animals, microbes; indigenous and alien invasive species, all habitats (aquatic and terrestrial).

• Foundational because it forms the basis of so many other aspects of biodiversity research and decision-making.
• Aligns with 3 international initiatives with which SA has agreements: GBIF, IBOL and EOL.
• Focus is South Africa – purely because of limited resources and need to sort out issues with foundational biodiversity knowledge and data here before diluting effort outside of the country.
Funding grants – open call, decisions by NRF constituted panel

i. Strategic small projects: 1 year projects – R50,000 to R200,000

ii. Large integrated projects: 3 years – up to R2 million / yr

• The data / knowledge should be clearly and directly linked to bioeconomy and / or global change

• Grants can be used for taxonomic research, mobilisation of primary data (specimen records), generation of DNA barcodes for submission to BOLD, compiling species information or for data management / dissemination innovations.

• Data from projects have to be submitted to FBIP / SANBI – archiving and dissemination
Critical factors for successful projects

- Who will use the data?
- How / where will they access the data?
- What will change because the project is done and why will this matter?
- Can the project be done in the funding timeframes with the capacity and budget available?
- How does the project contribute to national priorities? (eg. NBSAP, the Bioeconomy Strategy, the Biodiversity Research & Evidence Strategy)
Examples of small projects

- Microbial diversity in soil associated with rooibos and honeybush plants
- DNA barcoding of earthworms in the vermiculture industry
- Survey of frogs in KZN and inclusion of frogs in ecotourism activities
- Impact of climate change on soil microbes
- One baobab species in SA or two?
- Database of commercial mushroom pathogens
- Barcoding of all freshwater fish and frog species in SA.
- Plant survey of the Stormberg.
Examples of some projects funded ...

• SeaKeys – marine species, linked to Operation Phakisa
Biogaps

Karoo BioGaps Project

[Map of South Africa showing biomes]

[Images of people in a landscape, presumably part of the project activities]

Filling biodiversity information gaps
What will we do with the data?

• List of projects and datasets to be made available through the FBIP website
• Where appropriate data submitted to GBIF and made accessible through that site
• Will feed into the SANBI Integrated Data Architecture system once this is established. From here it will be used for Red List assessments, National Biodiversity Assessments, EIAs, spatial plans ...

• Grantholders remain free to disseminate their data in any way that they want to as well as submitting it to the FBIP
• Grantholders remain the owners of the dataset
What we are learning ...

• Many researchers don’t know about national decision-making / policy context
• Data capture, data quality / standards – not a priority for researchers
• Ethics – permits and impacts on the organisms not well thought through
• Project planning and management – missed deadlines or no delivery of proposed outputs.
Summary of expected outputs

Total expenditure: R38 million

- **520 000 specimen / occurrence records** (what species, where and when) – covering 9 000 localities and 22000 species (20% of SA’s species)
- **3 700 species and 8 000 specimens DNA barcoded**
- Descriptions of 20 + microbe communities from soil, roots
- **2 400 species pages compiled**
- 600 species revised, >20 new species discovered
- **59 postgraduate students provided with bursaries**
- Estimated 170 papers published (71 published to date)
Thank-you!