



## Communication from the NSCF Hub

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The NSCF hub team with staff from Iziko Museums of South Africa in Cape Town in November

### The NSCF Hub Team grows by 5!

Join us in welcoming the following new staff members to the NSCF family:



#### Data Quality Specialist: Bronwynne Petersen

Bronwynne holds a BSc. in Biodiversity and Conservation Biology and Honours in Plant Taxonomy. She has worked for SANBI since 2010 and has actively been involved in BRAHMS processes which include digitization, data capturing, data quality control; taxonomic research, scientific curation; and BRAHMS training of herbarium staff and other institutions as well. She previously was the BRAHMS representative at PRE and was involved in the development of platforms for the functioning of BRAHMS.



#### Data Technician: Ayanda Mnikathi

Ayanda has a BSc Honours in Grassland Science and currently finishing off her MSc at UKZN focusing on mapping invasive alien plants in grassland ecosystems. She previously worked at Ezemvelo KZN Wildlife as a GIS technician.



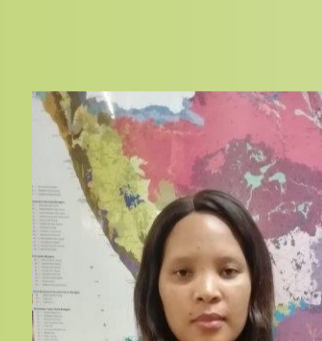
#### Data Technician: Ayanda Lawu

Ayanda completed his Honours degree in Geographic Information Systems (GIS) and Applied Remote Sensing in 2015. He previously worked at the Council for Geoscience as a GIS intern and at the Dept. of Rural Development and Land Reform as a GIS intern, capturing, updating, and managing cadastral data for the North West province.



#### Data Technician: Muzi Mashabane

Muzi holds a BTech Degree in Nature Conservation, and is currently busy with his final year BSc Honours in Environmental Management from UNISA. He previously work for the City of Mbombela as a Nature Conservation Intern for a period of 6 years.



#### Data Technician: Fezile Mathenjwa

Fezile holds a Masters degree in Environmental Society and Sustainability from the University of Cape Town. In April 2017 she was afforded an opportunity to work as an intern with the Custodians of Rare and Endangered Wildflowers (CREW) programme at the South African Biodiversity Institute (SANBI), where she worked on field collection, monitoring and capturing of threaten plant species

### From Michelle: Update on financials

What a way to end the year! We were at risk of losing several million Rand of unspent funds for the NSCF unless we could get these spent by the end of November. Shanelle gave me the financial update this week which shows how all the participating institutions have pushed through the procurement of their big items over the last few weeks, and we have come very, very close to the target level. There was an incredible amount of hard work and perseverance that went into dealing with procurement at several institutions, probably in response to Shanelle's relentless prodding. Shanelle's legendary efficiency and Usisipho's help ensured that payments were made by SANBI. The X-ray machine for Iziko, cabinets for the mammal collection at Ditsong, microscope for East London Museum, various items for SAIAB, Albany Museums and the ARC were all ordered or paid for or delivered. I am fairly sure that this has secured the last payment in full from the Department of Science & Technology.

This has shown an amazing level of commitment by everyone involved, and the power of working as a national network. Thanks very much and well done. I hope that you all have a chance to spend some down time with you family and friends over the festive season. Be careful and stay safe!

### From Audrey: Disaster preparedness in the workplace

It is Tuesday evening, and you are alone in your office, working late. Deep in thought, you sit at your desk, surrounded by documents concerning next year's departmental budget or performance assessment reviews. Most of the staff has left for the day. The maintenance crew is working in another wing of our institution. The silence is broken by a muffled popping noise, but you do not think anything of it. Unbeknownst to you, an electrical wire has shorted out inside a wall near the main exhibit hall. As you continue preparing the departmental budget or going through your performance assessment, sparks lead to flames. One wall is soon engulfed. The collections—and your life—are at risk. Your institution is equipped with smoke alarms, of course. But have the batteries been checked and replaced recently? How long will it take before smoke from the fire triggers an alarm? If flames block a hallway or stairway near your office, how will you escape? Do you have a mask to wear to protect your lungs from the smoke? Is a flashlight at hand? Where are the emergency telephone numbers? Does the maintenance crew know what to do or whom to call? Do local firefighters know what special techniques to use to protect the collection? Are up-to-date copies of institution records stored off-site? Who is going to handle the news media? You know what the answers to these questions should be, but are they in fact true for your institution? The threat to an institution can be drastically reduced by launching and maintaining an effective preparedness and response program. Doing so is easier than you think, and more valuable than you realise.



A fire at the Butantan Institute in São Paulo, Brazil, destroyed tens of thousands of snakes, spiders and scorpions. (source: <https://www.nature.com/news/museums->

### CHECK-LIST

#### How prepared are you to deal with fire emergencies? Use the check-list below as a self-assessment exercise.

If you expect employees to use firefighting equipment, you should give them appropriate equipment and train them annually to use the equipment safely. Below is a check list of what you can start with as an institutional self-assessment exercise.

- ⇒ Have a fire detection system – fire alarm, smoke / heat sensing detector, manual call point. Regularly check on these to make sure they are functional.
- ⇒ Have sufficient, appropriate and maintained firefighting equipment - water hose pipes and fire extinguishers (cannot be used on all collections, in case of a fire, but they could be useful in putting out a small fire). FM200 gas, is safe for occupied spaces with the correct fire suppression design.
- ⇒ Fire protection system - sprinklers / foam / gas /
- ⇒ Conduct fire drills and roll calls.
- ⇒ Fire inspection – an institution should inspect their facility once a year. This inspection is conducted by a registered service provider.
- ⇒ Conduct annual fire risk assessment - identification of fire / explosion risk areas within the institution.
- ⇒ Provide employee training on fire hazards and what to do in a fire emergency.
- ⇒ Emergency Evacuation Plans – have emergency action plan that explains evacuation routes and procedures employees should use in emergencies.
- ⇒ Have Fire Prevention Plans that are based on specific type of chemicals you store/use in the collections.
- ⇒ Inform workers of the potential fire hazards of their jobs and plan procedures.
- ⇒ Safe Storage of flammable/combustible materials - store (chemicals, gas cylinders, fuel oils, wood and paper waste) in dedicated separate storage that must be maintained.
- ⇒ Fire Extinguishers – the employer is required to train staff on the general principles of fire extinguisher use and fire hazards. Employer must annually inspect, maintain, and test all fire extinguishers in the workplace.
- ⇒ Exits and Exit Routes - must be free and unobstructed, no materials or equipment may be placed, either permanently or temporarily, within the exit route.
- ⇒ Illumination Testing and Maintenance – employer must conduct routine inspections of exit lighting and signs to identify any issue and then take action to correct deficiencies. These must be recorded and records must be maintained.
- ⇒ Storage of Hazardous Materials – staff must be trained on and adhere to proper handling, use, storage, and disposal of the hazardous material.
- ⇒ Record keeping - employers must maintain, and make available to the fire inspector, documentation and records associated with fire protection systems and services. Records of inspections should include maintenance records for alarm systems, sprinklers, or fire extinguishers, or the company's safety data sheet file.

### From Ian: Georeferences, verbatim localities, and the Darwin Core

A recent article in the Journal Evolution and Evolution (Bloom et al. 2018), has highlighted the importance of having high quality georeferenced data for species distribution modelling (SDM). Very simply, SDM is a method for working out a species true or potential geographic distribution range by looking at the relationship between localities where the species is known to occur and climatic and other environmental conditions at those localities, and then working out where else similar conditions occur. SDM has become extremely popular and important for work in species conservation, biogeography, climate change and invasive species studies, to name a few. And it's no surprise that museum specimens are often one of the most important sources of locality data used in SDMs.

When though, we need to add geographic coordinates (latitude and longitude) to museum specimen records because recording them in the field with a GPS, often the specimen is collected, has only become common practice in the last 20 years or so. Before that, people simply recorded the name of the location. Adding those coordinates happens through a process called georeferencing.

While several georeferencing protocols exist and have been developed rigorously by experts in the biodiversity informatics field (e.g. Chapman and Wiecekorek (eds) 2006, Hill et al. 2009, the MNIS/HerpNet/ORNIS Georeferencing Guidelines), they are applied with varying degrees of consistency or modification across georeferencing projects. Very often museum workers or scientists will simply add coordinates into records as they work with them or prepare datasets for collection. There is often no distinction made between records with field GPS coordinates, and those that are georeferenced long after the specimens are collected. The most important factor in using a georeferencing protocol is to record additional information about coordinates, such as the source, and their accuracy, so that users of the data further down the line, perhaps even decades down the line, are able to assess the fitness for use of those coordinates for their research.

This is where the Darwin Core (DwC) can be helpful. The DwC website has a helpful reference page for all the DwC terms, each illustrated with definitions and examples (<https://dwc.tdwg.org/terms/>). There are a total of six properties there can be used to elaborate on georeferences and make it clear what process was followed to generate them. This is an excellent starting point for any georeferencing project. Also very importantly, is that the DwC makes the distinction between verbatim localities and verbatim coordinates, and locality names and coordinates generated through georeferencing. It should be common practice across all specimen institutions to maintain this distinction to maintain this distinction in their specimen databases.

Chapman et al. (2018) used three different types of georeferences to produce SDMs for a high altitude specialist plant from northwestern North America (USA and Canada). The first was simply to include all locality records that had coordinates, without consideration of the source of those coordinates. The second was to use only records that included supplementary data, such as the DwC fields mentioned above. The third was a set that the authors georeferenced themselves using a rigorous protocol that focussed on determining the precision of georeferences possible from the locality data, and only those that were precise to 100m or less were used to produce the SDM. They found up to 30% difference in the results of the three SDMs for current climatic conditions, and the differences were even greater for future climate scenarios. The three different models also identified very different environmental factors as important for determining the species distribution. The paper is a nice example of how data quality affects the results of our research, and shows very clearly how we as the museum community need to think carefully about how we do georeferencing.

Bloom TD, Flower A, DeChaine EG. 2018 Why georeferencing matters: introducing a practical protocol to prepare species occurrence records for spatial analysis. Ecology and Evolution 8(1):765-77.

Chapman AD, Wiecekorek J (eds). 2006. Guide to Best Practices for Georeferencing. Global Biodiversity Information Facility, Copenhagen.

Hill AW, Guralnick R, Flemons P, Beaman R, Wiecekorek J, Ranipeta A, Chavan V, Remsen D. 2009. Location, location, location: utilizing pipelines and services to more effectively georeference the world's biodiversity data. BMC Bioinformatics 10(14):S3.

Please contact me on [ianicus.za@gmail.com](mailto:ianicus.za@gmail.com) if you would like any of these articles.

### From Shanelle: NSCF Reports and hub team leave during December

I am sure that no one is in the mood to talk about reporting at this time of year but I have to mention once again that the numbers you submitted via our online reporting tool in the last six months have made a huge difference in showcasing the importance of the work we do. To make sure that everyone gets a chance to submit their outputs after the holidays I have extended the Quarter 3 report deadline to 21 January. The template is already available online for those who want to get the numbers in before they go on leave.

Finally, thank you to each and everyone's support during the year, the hub team appreciates all your hard work and dedication. We will be on leave from 14 December, and will see you again on 7 January .

### Some interesting reading



Dr Greg Hofmeyr displays a leopard seal skull in a store room at Bayworld, which has one of the five biggest scientific marine mammal collections in the world  
Image: Werner Hills. Read the full article here: [Treasure at Bayworld](https://www.heraldlive.co.za/2018/12/12/treasure-at-bayworld/)

- ◇ [Using the 5 Ws to communicate your research](#)
- ◇ [Museums: The endangered dead](#)



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Collections management working group Twitter handle: [@NscfMan](#)

### SEASONS GREETINGS AND SAFE TRAVELS DURING THE HOLIDAYS