National Museum, Bloemfontein
Overview of the National Museum

• The National Museum is a Declared Cultural Institution in terms of section 3 of the Cultural Institutions Act (Act 119 of 1998), resorting under the National Department of Arts and Culture (DAC).

• The National Museum is a Schedule 3A public entity in terms of the Public Finance Management Act (Act 1 of 1999).
The National Museum is a Natural History, Cultural History and Art Museum.

Natural Sciences (9 Departments)
- Acarology
- Arachnology
- Botany
- Entomology
- Flrisbad Quaternary Research
- Herpetology
- Mammalogy
- Ornithology
- Karoo Palaeontology
National Museum: Staff

- Principal and specialist museum scientists: 9
- Museum and assistant museum scientists: 4
- Research assistants: 8
- Preparators: 9
- General assistants: 7
- 5 NRF rated scientists
National Museum: Challenges

• Implementation of GRAP 103 Heritage assets.

• Insufficient & inappropriate storage space for collections.

• Recruitment and retention of staff (competitive salaries).

• Succession planning for key positions.
Acarology Department

Principal Museum Scientist and HOD: Dr Lizel Hugo-Coetzee

Museum Scientist: Vacant

Research Assistant: Vacant
Size and Scope

- Main collection: ± 290 700 oribatid mites (soil mites)
- Holotype: Oribatida – 243
  - Astigmata (mostly bird parasites) – 213
  - Prostigmata (mostly water mites) – 12
- 9 new genera and 158 new species described by National Museum researchers.
- Database used: Access.
Projects

- Oppiidae of South Africa.
- Oribatid mites in termite nests.
- Mites in Sphagnum mosses.
Challenges

- Unsorted material, curation.
- Enough space and good equipment for now.
Arachnology Department

HOD: Vacant
Museum Scientist: Mr Jan A. Neethling
Chief Research Assistant: Trudie Peyper
Size and Scope

- **Araneae** – 42898
  - 77 Holotypes

- **Opiliones** – 3566
  - 2 Holotypes

- **Myriapoda/Acari** – 3469
- **Amblypygi** – 6
- **Pseudoscorpiones** – 1542
  - 14 Holotypes
- **Scorpiones** – 1099
  - 2 Holotypes
- **Solifugae** – 1931

**TOTAL:** *ca* 54 500 (alcohol preserved)

- Database used: Microsoft Access
Projects

• South African National Survey of Arachnida (SANSA).
• Systematics of Medically important spiders in South Africa.
• Research on non-acari Arachnida in the Free State.
• Research on rare forest spiders.
• Systematic revision of the pseudoscorpion fauna of South Africa.
Challenges

• Collection growing by *ca* 12 bottles, thus 500 – 2000 specimens per annum.

• Recently bought new shelves so there is currently enough room, but storage area is almost out of space for new shelves.
Botany Department

Principal Museum Scientist and HOD: Dr Ziets Zietsman

Assistant Museum Scientist: Elmarie van Rensburg

Senior Research Assistant: Louise Zietsman

Post Doc: Dr Madeleen Struwig
Size and Scope

- Main collection: ± 30 000
- Isotypes: 64
- Database used: Brahms version 7
Projects

- Collecting in the under collected and arid regions:
  - Mokala National Park (compiling species list)
  - Augrabies Falls National Park
  - Kalahari Gemsbok National Park
  - Ghaap plateau (compiling species list)
  - Central SA (Free State and Northern Cape)
- Sustainable harvesting of Devil’s Claw (*Harpagophytum procumbens*). 
- Collecting plants for bioprospecting.
- Taxonomic revision of the genera *Nananthus* and *Rabiea* (Aizoaceae).
Challenges

• Space – cupboards too full, specimens are damaged.

• Name changes – need an updated Brahms taxa list.

• Lack of experts to determine specific species.
Entomology Department

Specialist Museum Scientist and HOD: Dr Ashley Kirk-Spriggs

Senior Museum Scientist: Mr Burgert Muller

Research Assistant: Mary Kirk-Spriggs
Size and Scope

- **Diptera** – ca 210 000
- **Coleoptera** – ca 190 000
- **Hymenoptera** – ca 10 000
- **Other insect orders** – ca 10 500
- **Types** – 2045
- **TOTAL:** – ca 420 500 (ca 112 000 alcohol preserved).

- Database used: Excel.

*Chrysopilus sp.* (Rhagionidae)
Projects

• Manual of Afrotropical Diptera.
• International Survey of Afrotropical Diptera.
• The Pollinator Information Network for two-winged insects (Diptera) (PINDIP).
• Diptera of the Mascarene Islands.
• Systematics of Afrotropical Quasimodo flies (Curtonotidae).
• Systematics of Afrotropical Water Snipe flies (Athericidae).
Challenges

- Collection growing by *ca* 15 000 pinned specimens, *ca* 20 000 ethanol preserved specimens (all identified to at least family).

- Need to move drawers and bottles into a compactor system as space is becoming an issue with the current cupboard system.
Florisbad Quaternary Research Department

- Senior Specialist Museum Scientist and HOD: Dr James S. Brink
- Specialist Museum Scientist: Dr Daryl Codron
- Research Assistant and Collections Manager: Ms Sharon Holt
- General Assistants: Mr A. Dichakana, Mr I. Thapo, Mr J. Maine
- Site Manager: Mr J. Smith
- General Assistants: Ms T. Oerson, Mr J. Motshabi, Mr M. “Roger” Mahloko
Size and Scope

1. Comparative Osteology
   • Skeletal elements of 3,917 individuals.
   • Extant vertebrates, mainly mammals.
   • Large representation of the SA interior grassland system.

2. Quaternary Fossils
   • 11,178 accessioned specimens.
   • Quaternary assemblages, mostly mammal, across the SA interior.
   • Includes the typesites for the Cornelian and Florisian Land Mammal Ages.

3. Human Remains
   • 533 accessioned specimens.
   • Includes the Matjesriver Holocene sample.
   • Includes a unique 259,000 year old archaic Homo sapiens cranium.
Projects

1. Evolution of the South African grassland fauna
   • Species diversity, ecological associations, and extinctions.
   • Origins of a biogeographically unique fauna in African savannas.
   • Palaeoclimates and palaeoenvironmental reconstructions.

2. Ecological interactions then and now
   • Stable isotope analysis of fossil and extant specimens.
   • Comparative isotopic niche structure of mammal communities through time.
   • Comparative isotopic niche structure of carnivores vs herbivores.

3. Palaeo-biogeography of South African tortoises
   • Palaeo-distributions of arid and semi-arid species.
   • Allometric changes in limb and other skeletal elements across habitats.
Herpetology Department

Specialist Scientist and HOD: Dr Michael Bates

Museum Scientist: Ms Buyisile Makhubu

Research Assistant: Mrs Agnes Phindane

Museum Assistant: Mr Edgar Mohapi
# Size and Scope

<table>
<thead>
<tr>
<th></th>
<th>Reptiles</th>
<th>Amphibians</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection</td>
<td>11,719</td>
<td>8,216</td>
</tr>
<tr>
<td>No. of species</td>
<td>324</td>
<td>110</td>
</tr>
<tr>
<td>Holotypes</td>
<td>2 species</td>
<td>9 species</td>
</tr>
<tr>
<td>Paratypes</td>
<td>1 species (1 specimen)</td>
<td>14 species (72 specimens)</td>
</tr>
</tbody>
</table>

- **Scope**: Mainly South Africa but also other sub-Equatorial countries.
- **Database used**: Microsoft Access.
- **Ethanol-preserved, dry preservation for some tortoises + skeletons.**
Projects

- Taxonomic revision of the egg-eating snakes (*Dasypeltis*) of Africa and Arabia (in parts).
- A revision of the plated lizards of the *Gerrhosaurus nigrolineatus* species complex.
- A revision of the south-eastern forms of the *Smaug warreni* species complex.
- Description of new species of flat geckos (*Afroedura*) from central South Africa.
- A phylogenetic analysis of the thick-toed geckos of the *Pachydactylus capensis* species complex, with the description of new species.
Challenges

- Ultra-deep freezer.
- Funding for genetic work.
- Collection storage space.
- Office space.
- Outdated equipment.
Mammalogy Department

Senior specialist scientist and HOD: Dr Nico Avenant

Museum scientist: Dr Jurie du Plessis

Preparator: Mr Tshediso Putsane

Preparator: Mr Ronny Nokha
Size and Scope

- Currently c. 11 000 specimens (*over the last 10 years at a mean combined rate of >5 per annum*).

- Study skins, skulls, complete skeletons, baculums, embryos, wet collection.

- The largest collection of mammals from the Free State, Lesotho and from the northern parts of the Eastern Cape; material also from the Northern Cape, Western Cape, Gauteng, Swaziland, Namibia and Malawi.

- Database used: Access.
Projects

• Monitoring small mammals effectively: a comparison of trapping methods.

• Patterns in the soil composition and structure, recovery of vegetation, and changes in mite, insect, spider and small mammal communities after fire in a grassland ecosystem, Erfenisdam Nature Reserve, Free State Province.

• *Canis- Caracal* Programme.

• The Mammals of the Free State.

• Mammals of Lesotho.

• Many other collaborative projects such as updating the Redlist for mammals and small mammals as ecological indicators.
Challenges

• New cupboards have been installed, enough space for new acquisitions.

• Some old specimens stored on premises leased by DPW, leasing contracts sometimes a challenge.
Ornithology Department

Senior Museum Scientist and HOD: Mr Dawie de Swardt
Preparator: Mr Lots Morapedi
Research assistants: Vacant
Size and Scope

- Study skins 4762
- Skeletons 2712
- Alcohol specimens 358
- Exhibit specimens 893
- Nests 46
- Eggs 515
- Avian ecto-parasites 896
- Stomach contents 2403
- Avian Tissue samples 1688
- Avian blood parasites 819

- TOTAL 15 092 specimens
Projects

• Collect representative samples of bird specimens in the Free State.

• Collecting work also collaborates with researchers from local and abroad universities to obtain DNA material.

• Collaboration with University of Limpopo in study on Alaudidae species by collecting specimens and study museum specimens.

• Karoo & Drakensberg Prinias and African Rock Pipit song vocalizations and breeding biology.

• Gurney’s Sugarbirds at Lydenburg, Mpumalanga.

• Collaborate with Animal Demography Unit with the South African Bird Atlas Project (SABAP2) and other projects.
Challenges

• Collections stored at different store localities, for example DPW stores. These store facilities have been upgraded and made dust free.

• Passerines of skin collection re-packed and steel cabinets of non-passerines in process of being re-packed. Larger skins stored in wooden cabinets.

• Tissue sample collection need to be in a walk in freezer – samples currently stored in 95% alcohol and at room temperature.
Paleontology Department

Specialist Museum Scientist and HOD: Dr J. Botha-Brink
Principal Research Assistant: Mrs E. Butler
Osteohistology Technician: Mrs S. Gubuza
Preparation Consultant: Mr J. Mohoi
Senior Preparators: Mr N. Ntheri, Ms S. Chaka
Preparators: Ms S. Ledibane, Mr W. Molehe, Mr T. Ntsala
Size and Scope

- Main collection: 4500 Karoo vertebrate fossils
- Holotype: 12
- Morphological taxonomy
- Bone Histology
Projects

• Terrestrial vertebrate recovery following the Permo-Triassic Extinction (various subprojects).

• Bone histology of Permo-Jurassic vertebrates (various subprojects).

• Bone histology of the Early Pliocene *Xenopus* from Langebaanweg, West Coast, South Africa.

• Morphology and bone histology of the Early Triassic cynodont *Galesaurus planiceps*.

• Morphological description of a new species of gorgonopsian therapsid from the Karoo Basin of South Africa.

• Tooth replacement patterns in Eutheriodontia.
Projects

- The life history of the leopard tortoise *Stigmochelys pardalis*, deducted from bone histology.
- Bone histology of the traversodontid cynodonts *Protuberum* and *Exaeretodon* from southern Brazil.
- Bone histology of the sauropodomorph *Massospondylus carinatus*.
- Bone histology of the ground pangolin, *Smutsia temminckii*.
- Osteohistological features of fossorial mammals.
Challenges

- Collection space.
- Rented building.

Lystrosaurus
THANK YOU