

**Palaeontological Impact Assessment for redevelopment of portions 66 and
67 of Brakkloof 443, Plettenberg Bay**

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Executive summary

No palaeontological material of any importance was observed and no mitigation is therefore specified.

Background

Portions 66 and 67 of Brakkloof 443 were originally developed as a single property with a single dwelling. It is now the intention to redevelop the combined stands to include 9 units. André Vercueil Consulting Architects are preparing a Heritage Impact Assessment for this project and subcontracted Dr Rob Gess of Rob Gess Consulting to compile a Palaeontological Impact Assessment for the development.

The site was fully surveyed on foot by Dr Robert Gess on the 19th of April 2022.

Figure 1: Proposed Development layout.



Geology and Palaeontology

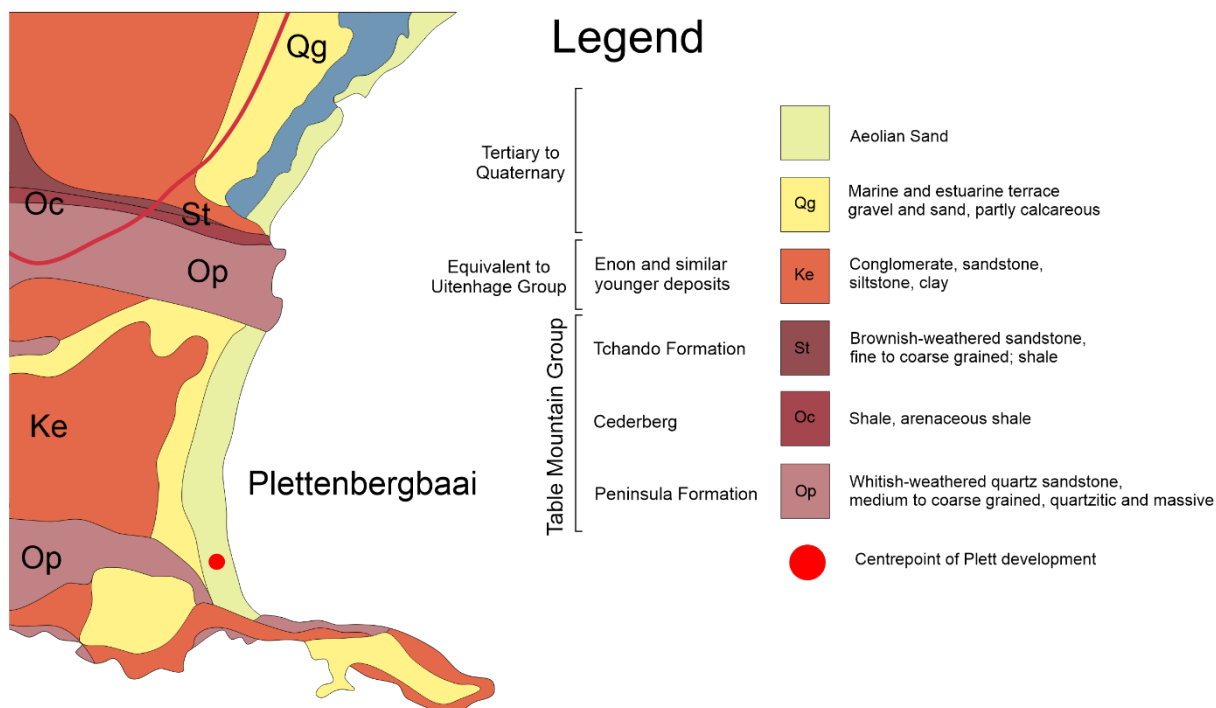


Figure 2: Geological map of the study area and surrounding areas according to geological survey data.

The planned development is situated on a geologically relatively recent aeolian barrier dune system, running parallel to Roberg Beach, which separates the beach from a wetland area which probably represents a former estuarine inlet.

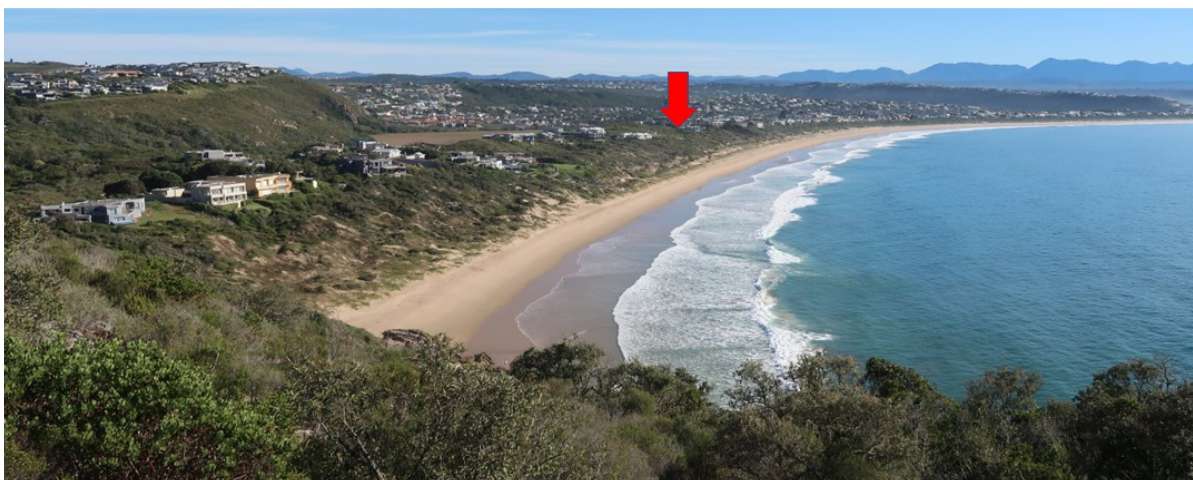


Figure 3: Position of proposed development (marked with red arrow) seen from Roberg

Peninsular.

Recent (Holocene) mobile sands of this type not uncommonly contain important records of ancient mammal faunas, either as isolated occurrences or associated with marine shell middens accumulated by human activity.

Site visit



Figure 4: Satellite image of the study area with points where photos taken numbered.

Much of the eastern portion of the study area is covered in a mixture of low growing indigenous sand veld and invasive Rooikrantz (Fig. 3, dark green), presumably introduced into the area to stabilise the line of dunes. This vegetation currently hampers assessment of the palaeontological potential of the underlying sands (Figs 5-10).

In the vicinity of the existing dwelling, evident mining of sand for construction of the building, levelling, and other concomitant disturbances, resulted in removal of the humus-rich surface layer. This has prevented recovery of vegetation and these areas have developed into blow-outs (Figs 11-15, 18), which permit assessment of the underlying sands. In some areas early stage calcretisation is evident, with the development of rhizocretes around former roots (Fig. 16). Holocene terrestrial snail shells were also observed (Fig 17). Very little indications of 'strandloper' middens were observed, with only a few sparse scatters of sand mussels being observed (Fig 19). No large mammal bones or significant palaeontological material was observed.



Figure 5: View southwards from point 9 (Fig. 4) along boundary of proposed development properties (situated to the left).



Figure 6: View south west from point 8 (Fig. 4) showing westerly portion of the intended development area. The property extends to approximately the overhead electrical lines and white electricity box (visible to right of centre). The wetland is visible below the properties with cliffs of Table Mountain Group, Peninsular Formation, sandstone beyond.



Figure 7: View south east from point 8 (Fig. 4) showing low growing indigenous strand veld in the foreground. (Robberg Peninsular in the background with pale cliffs of Table Mountain Group Peninsular Formation below and vegetated Cretaceous Enon-type conglomerates above).



Figure 8: View east from point 8 (Fig. 4) showing the western portion of the proposed development area with the existing structure in the centre, and the northern boundary fence to left.



Figure 9: View south west from point 2 (Fig. 4) showing thick stands of Rooikrantz.



Figure 10: Fertile 'top sand' with a high organic content exposed near point 8 (Fig. 4).



Figure 11: View north west from point 1 (Fig. 4) showing eroded dune front.



Figure 12: View south west from point 3 (Fig. 4) showing sand blowout resulting from previous construction activities.



Figure 13: View north west from point 4 (Fig. 4) showing former sand mining area.



Figure 14: View south east from point 5 (Fig. 4).



Figure 15: Weathered former face of sand extraction area at point 6 (Fig. 4).



Figure 16: Rhizoliths (calcretised root casts) exposed in the bank at point 6 (Fig. 4).



Figure 17: Terrestrial land snail shell in lightly consolidated sand at point 6 (Fig. 4).



Figure 18: Area disturbed by sand mining at point 7 (Fig.4). looking to the south east.



Figure 19: Part of a small concentration of sand mussels exposed at point 7 (Fig. 4).

Conclusions and Recommendations

The proposed development area is situated on a long beach barrier dune system that separates Robberg Beach from a back barrier wetland that is likely to have, at times, comprised an estuarine inlet. As such this environment might well have been favoured by large mammals, such as hippo, and to have been attractive to ‘Strandloper’ communities. That said, such communities are more likely to have been most attracted to settle somewhat closer to the Robberg Peninsular with its greater abundance of shellfish.

The proposed development site is largely too covered in thick vegetation, particularly invasive Rooikrantz, for all surface outcrop to be investigated. Much of the area around the dwelling has however been disturbed, with removal of organic rich top sand leading to the development of blow outs. These were all carefully examined. Initiation of calcretisation of sediments was observed with the development of rhizoliths. Small terrestrial snail shells were noted throughout the sand.

Very little indication of strandloper activity was observed, with only sparse small scatters of sand mussels being observed.

No palaeontological material of any importance was observed and no mitigation is therefore specified.

It does however remain possible that after the bush has been cleared, or during construction, large mammal bones may be uncovered – associated with midden deposits, former hyena dens or on their own.

Should any such materials be suspected to be present, during clearing, levelling or excavation of foundations a palaeontologist should immediately be contact to assess the occurrence.

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THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I Dr Robert W Gess as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I :

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).



Signature of the Specialist:

Name of Company:

Date:

Rob Gess Consulting

20 – 06 -2022

CURRICULUM VITAE – ROBERT WOLFGANG GESS

Robert Gess has more than 30 years of experience in palaeontological research in the Eastern Cape, covering all geological units. He is currently South Africa's primary researcher on South African Devonian Palaeoichthyology and Palaeobotany. He has published numerous papers in international peer-reviewed journals in conjunction with colleagues, including a description of the oldest fossil lamprey (*Priscomyzon*), published in *Nature* in 2006, a second paper on *Priscomyzon* published in *Nature* in 2021 and focussed on overturning major evolutionary assumptions about lamprey larvae; a paper published in *Nature* utilising 3D scanning to redescribe the 'shark' *Dwykaselacus* and demonstrate the origin of Holocephalan fish; description of Africa's earliest known fossil tetrapods (legged vertebrates) by 80 million years, which overturns major biogeographic assumptions regarding tetrapod evolution published in *Science*, and descriptions of numerous other species including Gondwana's earliest known terrestrial animal, a Late Devonian scorpion. He has also discovered and helped describe and numerous new taxa of Devonian plants, including the oldest flora from Africa.

Date of birth: 9 November 1968

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Home address: Erf 531 Orange Lane, Bathurst (Box 40, Bathurst, 6166), Eastern Cape.

Research address: Devonian lab, Albany Museum, 87 Beaufort Street, Makhanda (Grahamtown), Eastern Cape, South Africa

Schooling: Saint Andrews, Grahamstown/Makhanda

Qualifications:

| | | |
|-------------------------------|---------------------------------|------|
| PhD (Palaeontology) | University of the Witwatersrand | 2011 |
| M.Sc. (Zoology/Palaeontology) | University of Fort Hare | 2003 |
| Higher Diploma in Education | Rhodes University | 1992 |
| B.Sc. (Geology and Zoology) | Rhodes University | 1991 |

Professional Associations

SACNASP registered Professional Scientist

Albany Museum, Grahamstown, Research Fellow affiliated to the NRF DST South African Centre of Excellence in Palaeontology

Rhodes University Research Associate and part time lecturer.

Palaeontological Society of South Africa

South African Council for Stratigraphy Working Group for the Cape Supergroup. (since 2014)

South African Committee for Stratigraphy – Task group for Biostratigraphy (since 2018)

International Subcommittee on Devonian Stratigraphy (since 2016)

NSCF Outreach and Communications Working Group

Easter Cape Provincial Heritage Resource Agency permit advisory committee – palaeontological advisor

Palaeontological Experience

January 2017 - Present: Albany Museum, Grahamstown, Research Fellow affiliated to the DST/NRF South African Centre of Excellence in Palaeosciences and funded by the Millennium Trust

Consulting, part time lecturing – Rhodes Geology Department

July 2015 - December 2016: Albany Museum, Grahamstown, Post Doctoral Research Fellow affiliated to the DST/NRF South African Centre of Excellence in Palaeosciences

Consulting, part time lecturing – Rhodes Geology Department

July 2013 - June 2015: Post Doctoral research at Rhodes University, Grahamstown.

Eastern Cape Provincial Heritage Resources Agency Permitting Committee – palaeontological representative

Consulting, Part time lecturing – Rhodes Geology Department

July 2012 – June 2013: Post Doctoral research at Bernard Price Institute (now Evolutionary Studies Institute), University of the Witwatersrand.

Consulting, part time lecturing – Rhodes Geology Department

March 2011 – June 2011: Post Doctoral research at Bernard Price Institute (now Evolutionary Studies Institute), University of the Witwatersrand.

Consulting, part time lecturing – Rhodes Geology Department

July 2006 – December 2010: Doctoral Research at Bernard Price Institute, University of the Witwatersrand,

funded by the Palaeanthropology Scientific Trust (PAST) and the National Research Foundation (NRF).

Supervisors: Professor Bruce Rubidge (PhD), director of the Bernard Price Institute of Palaeontological Research, University of the Witwatersrand.
Professor Michael Coates (PhD), Department of Organismal Biology and Anatomy Chair, University of Chicago

Consulting

2003-2005: Self funded research. Tourguiding

2001-2002: Writing MSc in Palaeontology whilst doing research for Geodatec, Grahamstown.

Supervisors: Dr Norton Hiller, Canterbury Museum, New Zealand
Dr Jacques van Heerden, Zoology Department, University of Fort Hare

1996-2000: Self funded research.

Part time Palaeontological Consultancy, including evaluation of Palaeontological resources, and mitigatory excavations.

Visits to international institutions.

1993-1995: Graduate Palaeontological Research Assistant, Geology Department, Rhodes University

Supervisor: Dr Norton Hiller, Geology Department, Rhodes University.

Publications

Peer Reviewed Chapter in Book

Gess, R.W. (2016). Vertebrate biostratigraphy of the Witteberg Group and the Devonian Carboniferous boundary in South Africa, in eds. Linol, B. and de Wit, M. J., *The Origin and Evolution of the Cape Mountains and Karoo Basin*. Springer, Regional Geology Reviews. pp 131-140. Doi: 10.1007/978-3-319-40859-0_13

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Coates, M. I., **Gess, R. W.**, Finarelli, J. A., Criswell, K. E. and Sansom, I. J. (2015) Diversity, homoplasy and uncertainty among the earliest sharks. Abstract volume, 13th International symposium on Early and Lower Vertebrates: Royal Society of Victoria, Melbourne Australia, August 3rd-7th, 2015. *Abstract volume, 13th International symposium on Early and Lower Vertebrates: Royal Society of Victoria, Melbourne Australia, August 3rd-7th, 2015.*

Gess, R.W. (2015) The Witteberg Group fossil record and the End Devonian Mass Extinction event. *Abstract volume, Cape Karoo IMBIZO: Origin and Evolution of the Cape Mountains and Karoo Basin, Port Elizabeth, 25th to 27th November, 2015.*

Prestianni, C., **Gess, R.**, Rustán, J. J., Balseiro, D., Vaccari, E., & Sterren, A. F. (2015) Brussels, Belgium, September 2015. (2015). Continental ecosystems at high palaeolatitude before and after the Devonian–Carboniferous boundary: two examples from South Africa and Argentina. *STRATA*, 122, Brussels, Belgium, September 2015.

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Gess, R.W., (2014) New specimens of *Africanaspis*, an arthrodire placoderm genus from the Devonian, Famennian, Witpoort Formation Waterloo Farm lagerstätte allow for the definition and full reconstruction of two species. *Proceedings of the 18th Biennial Conference of the Palaeontological Society of Southern Africa, Johannesburg, July 11–14, 2014.*

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Mabotha M.E., Abdala, F., and **Gess, R.** (2014), A new skeleton of a scaloposaurian therocephalian (Therapsida, Eutheriodontia) from the Late Permian of the Karoo Basin *Proceedings of the 18th Biennial Conference of the Palaeontological Society of Southern Africa, Johannesburg, July 11–14, 2014.*

Gess, R.W. (2013). Waterloo Farm – A Devonian palaeoheritage site with immense possibilities for education and geotourism. *Geoheritage Series Number 2 : 26-27(Extended Abstracts) – Geoheritage Conference, 8-11 September 2013, Outhoorn.*

Gess, R.W. (2012). Distribution patterns of Devonian tetrapodomorphs revealed by study of pectoral girdle morphologies. *Proceedings of the 17th Conference of the Palaeontological Society of Southern Africa, Cape Town, 5-8 September, 2012.*

Gess, R.W. (2010). Relative abundance or variable preservational potential? A Late Devonian study. *Proceedings of the 16th Conference of the Palaeontological Society of Southern Africa, Pietermaritzburg, 5-8 August, 2010.*

Gess, R.W. and Coates, M.I. (2008). Vertebrate diversity of the Late Devonian (Famennian) deposit near Grahamstown South Africa. *Abstracts of the 68th Annual Meeting of the Society of Vertebrate Palaeontology, Cleveland, Ohio, USA.* In *Journal of Vertebrate Palaeontology*, **28**, 3, conference supplement.

Gess, R.W. (2008). The Vertebrate Fauna of the Late Devonian, Famennian, Witpoort Formation, Waterloo Farm locality, near Grahamstown. *Palaeontological Society of Southern Africa 15th Conference, Matjiesfontein, 12-14 September 2008, abstracts.*

Gess, R.W. (2007). Chondrichthyan fossils from the Famennian of South Africa. 11th *Conference on Australasian Vertebrate Evolution, Palaeontology and Systematics. Geological Society of Australia Abstracts 85.*

Gess, R.W. (2006). Recent advances in the study of the Late Devonian, Famennian, Witpoort Formation (Upper Witteberg, Cape Supergroup) fauna of the Grahamstown district. *14th Biennial Congress of the Palaeontological Society of Southern Africa, Grahamstown, 07-10 September 2006, abstracts.*

Gess, R.W. (2004). A large Cyrtoctenid Eurypterid from a Witpoort Formation (Upper Devonian, Famennian) exposure near Grahamstown in the Eastern Cape. *Geoscience Africa 2004, Abstract Volume.*

Gess, R.W. (2002). Important new chondrichthyan material from the Witpoort Formation of the Devonian Witteberg Group. *Palaeontological Society of Southern Africa, 12th Biennial Meeting, Abstracts, National Museum, Bloemfontein. 3-7 October 2002.*

Gess, R.W. (2000). A late Devonian diplacanthid: a new discovery from the Witteberg Group (Witpoort Formation). *Proceedings of the 11th Biennial Conference of the Palaeontological Society of Southern Africa, Pretoria 4-8 September, 2000.*

Hiller, N and **R.W. Gess.** (1994). Algal fossils in South African Devonian. *Proceedings of the 8th Biennial Conference of the Palaeontological Society of Southern Africa, Grahamstown, 5-7 September 1994.*

Anderson, M.E., N.Hiller and **R.W. Gess.** (1994). New discoveries of Devonian fishes at Grahamstown. *Proceedings of the 8th Biennial Conference of the Palaeontological Society of Southern Africa, Grahamstown, 5-7 September 1994.*

Gess, R.W. (1994). Plant, algal, arthropod and fish material from the Late Devonian Witteberg Group, Grahamstown. *Proceedings of the 8th Biennial Conference of the Palaeontological Society of Southern Africa, Grahamstown, 5-7 September 1994.*

Theses

Gess, R.W. (2011). High latitude Gondwanan Famennian biodiversity patterns – evidence from the South African Witpoort formation (Cape Supergroup, Witteberg Group). PhD thesis, University of the Witwatersrand.

Gess, R.W. (2003). The palaeoecology of a coastal lagoon of the Witpoort Formation (Upper Devonian, Famennian). M.Sc. thesis, University of Fort Hare.

Other research outputs

Invited keynote speeches

Gess, R.W. (2018). Africa's Earliest Four-Legged Animals by 80 million Years, the Worlds Only Known High Latitude Devonian Tetrapods: Communicating an Exciting Discovery in the Contemporary Communications Environment. Keynote address at the 2018 SAMA National Conference 'Hyperconnected Museums: New Approaches, New Publics' National English Literary Museum Makhanda (Grahamstown), 22 to 25 October 2018.

Gess, R.W. (2016). Grahamstown's Unique Devonian Heritage: A Cross Cultural Shared Asset. Keynote address at the 33rd Regional Conference of the South African Museums Association (Eastern Cape), May 23 – May 2016, Albany Museum, Grahamstown.

Invited Scifest Lectures

A one hour online webinar talk entitled, 'Soft tissue, Hard science – how 360 million year old lamprey infants from Makhanda overturned a 150 year old scientific dogma' as part of the online 2021 Scifest Africa program on 3pm 20 May 2021.

A one hour talk entitled, "The unusual Grahamstown fossil coelacanth find" as part of the main lecture series of the 2016 Scifest Africa program, in the Olive Shreiner Hall, Monument, Grahamstown at 3pm on the 8th of March 2016.

A one hour talk entitled, "The Rocks beneath the Monument: a fossil time capsule" as part of the Rhodes/Albany Museum geology lecture series (part of the 2016 Scifest Africa), in the Olive Schreiner Hall at 11 am on the third of March 2016.

UCT Summer School 2020

Provided a three lecture course at UCT Summer School between 20 and 22 January 2020 entitled, "The Late Devonian: In the time that we first grew legs."

Workshops

17th July 2018: Inaugural NSCF (Natural Science Collections Facility) Outreach & Communication Working Group meeting at SANBI in Pretoria.

5th March 2018: *22nd Annual Meeting of the SACS Workgroup for the Cape Supergroup* held in Bellville, Western Cape

13th - 15th: September 2015 Coe in Palaeontology workshop to discuss future strategies for palaeontological outreach.

17 June 2014: *21st Annual Meeting of the SACS Workgroup for the Cape Supergroup* held in Bellville, Western Cape.

Palaeontological Impact Assessment surveys and reports

88 between 2006 and 2018

Students supervised

2022 Mr Ryan Nel, PhD (ongoing), Rhodes University, principal supervisor

2020 Mr Chris Harris, PhD (ongoing), Wits, ESI, co-supervisor

2019 Mr Chris Harris, Masters (*cum laude*), Wits ESI, co-supervised

2019 Ms Naadiya Hoosen, Honours (*cum laude*), Rhodes University, co-supervised

2017 Mr Chris Harris, Honours, Wits ESI, co-supervised

Grants received

2022: Millennium Trust salary: R 721 000

Millennium Trust salary for research/lab assistance: R 286 000

Millennium Trust lab operating expenses 2020: R 34 000

CoE grant for operational support: R 36 000

Rhodes University incentive funding for rated researches R 40 000

2021: Millennium Trust salary: R 674 000

Millennium Trust salary for research/lab assistance: R 267 000

Millennium Trust lab operating expenses 2020: R 32 000

CoE grant for operational support: R 70 000

Rhodes University incentive funding for rated researches R 40 000

2020: Millennium Trust salary: R 630 000

Millennium Trust salary for research/lab assistance: 2020: R 250 000

Millennium Trust lab operating expenses: R 30 000
 CoE grant for operational support: R 64 000
 Rhodes University incentive funding for rated researches R 40 000

2019: Millennium Trust salary: R 551 000

Millennium Trust salary for research/lab assistant: R 198 000
 CoE grant for operational support: R 70 000
 Rhodes University T&S grant for attendance at the 15th International symposium on Early and Lower Vertebrates, Qujing, Yunnan Province, China, August 8th – 13th: R 40 000

2018: Millennium Trust salary: R R525 000

Millennium Trust salary for research/lab assistant: R 189 000
 CoE grant for operational support: R 48 000
 African Origins Platform grant: R 20 000
 SANBI collections support grant for purchase of microscope: R 127 959
 Rhodes T&S assistance for PSSA R 8 500
 Rhodes Research office (1/2) page charge contribution for Science paper: R 7425

2017: Millennium Trust salary: R 500 000

Millennium Trust salary for research/lab assistant R 180 000
 CoE grant for operational support: R 75 000

2015 (July) – 2016 (December)*: CoE Postdoctoral bursary: Bursary R 350 000 p/a
 with operational support R 70 000 p/a

African Origins Grant (2016): R 20 000
 Rhodes University Deans Discretionary Fund Conference support (for Australia) (2015): R 8 000
 Curtin University (Perth) Partial Conference fieldtrip support (Australia) 2015: R 12 000

2013 (July) – 2015 (June): 2015 Rhodes University Postdoc R 140 000 p/a

CoE bursary top up Jan 2015- June 2015: R 45 000
 CoE bursary top up July 2014 – Dec. 2014: R 45 000
 CoE operational support grant 2015: R 70 000
 CoE operational support grant July - December 2014: R 40 000
 Rhodes University operational support grant July 2014 - June 2015: R 10 000
 Rhodes University T&S assistance grant for IPC conference in Mendoza, Argentina 2014: R 30 000

Rhodes University T&S grant for Geoheritage conference (Outshoorn) Sept.2013:
 R 4 750

2012 (July) - 2013 (June): Wits postdoctoral grant (NRF Grantholder linked Postdoc Fellowship with top up by the URC): R 144 000

2011 (March) - 2011 (June): Wits 4 month post-doc: R 20 000

2006 (Jan) – 2008 (Dec): NRF Grant holder linked PhD Bursary: R 35 000 p/a

2006 (July) – 2009 (June): PAST PhD Bursary: R 48 000 p/a

PAST operational support grant July 2006 - June 2007: R 2 000

PAST T&S grant for CAVEPS conference (Melbourne, Australia) 2007: R 19 000

Public communication

Media releases

2021

8th June 2021: Press release for ‘An early Devonian flora from the Baviaanskloof Formation (Table Mountain Group) of South Africa. *Scientific Reports* in conjunction with the Royal Belgian Institute of Natural Sciences.

10th March 2021: Press release for “Non-ammocoete larvae of Palaeozoic stem lampreys. *Nature*. In conjunction with the CoE Palaeosciences at Wits University in conjunction with the University of Chicago

Resulted in widespread online and print media coverage domestically and internationally.

Media included: Nature Portfolio Ecology & Evolution Community, The Daily Maverick, Algoa FM, Grocotts, Business Insider SA, Business Link, CSS Engineering, NSCF Newsletter, Canadian Broadcasting Company, Gizmodo, Sci News.com, Atlas, U Chicago Medical Centre, iNews, Science Daily, Cosmos Magazine, and Phys Org, Sci Tech Daily

2018

8th June 2018: Press release for “A tetrapod fauna from within the Devonian Antarctic Circle. *Science*: 360 (6393)” in conjunction with CoE Palaeosciences at Wits University. Addressed by Professor Tawane Kupe (Vice Principle of Wits), Professor Bruce Rubidge (Director of CoE Palaeosciences), Minister of Science and Technology, Mmamoloko Kubayi-Ngubane and Dr Robert W. Gess (principle author).

Print media included: Die Burger, The Witness, Business Insider, Daily Dispatch, Herald, Grocotts, Saturday Star, Business Day, Financial Mail, Bloemfontein Courant, Quartz Africa, Daily Mail (UK), El Mundo (Spain)

Well over a hundred online media sites included: Discover magazine online, Netwerk 24, News 24, ENCA, Reuters (Washington), El Mundo online, Der Tagesspiegel, National

Geographic News, etv, The Times online, Daily Maverick, The Hindu, EWN, Herald live, Independent, Go South, Engineering News, Sonline, SA News, Newsweek, Japan Times, europapress, techtimes, Taipei times, SA life, Earth Magazine, Health thoroughfare, Sciecepasa, Der Standard, Telegraf, Tass, RT News, Channel News Asia, Club of Mozambique, Diario Libre, Iran today, Manila Bulletin, New York Times, Modern Gana, Sydney Morning Herald, yahoo news, Voice of America news.

Radio interviews included RSG and Kumkani FM. TV included SABC news.
A number of youtube movies were uploaded.

2017

Media around Per Ahlberg's visit to Grahamstown included:

Firmly planted on all four feet, *Grocott's Mail*: 147: 049, 8 December, 2017.
Tracing the tetrapods, *Grocotts Mail*: 147: 037, 6 October 2017.
World expert on water-to-land evolution, *Grocotts Mail*: 147: 039, 22 September 2017.

April 2017 Release of the paper on *Africanaspis* (placoderm fish from Waterloo Farm) was accompanied by coverage in local media, enhanced by colour painted reconstructions of the new species by artist Anton Brink.

eg. Rare fossils get 3D makeover, *Daily Dispatch*, 18 April 2017
Waterloo gives up more, *Grocott's Mail*, 21 April 2017.

4 January 2017 press release with Wits media and University of Chicago Press department coinciding with publication of *Dwykaselachus* in *Nature*, revealing the origin of Holocephalan fish.

Print media included: The Times, Daily Dispatch, Die Burger, The Sun (UK), Grocott's, Outshoorn Koerant.

Online media included: Science Daily, Science Life, Netwerk 24, eNews Park Forrest, Web India, Daily Mail Online, News 24, Gizmodo, Scinews, Newser, Technology, Tech Times, India Live Today, IBTimes, Vn Express, iTech Post, Live Science, The Verge, Phys Org, Daily Mail Online, Science Life, Times Live, Yahoo News, Announcer

2016:

1 June 2016 press conference "SANRAL Announces Discovery of New Plant and Invertebrate Species of Ancient Marine ecosystem in Eastern Cape." Re. discoveries at new roadworks east of Grahamstown (Makhanda), organized by SANRAL and Meropa in Grahamstown/Makhanda. Resulted in extensive coverage between the 1st and 3rd of June.

Print media included: Beeld, Daily Dispatch, Die Burger, Grocotts Mail, The Herald, The Times-Western Cape, Volksblad, The Witness, The Citezen, The Times, New Age, new Age North West, New Age KZN, Brakpan Herald, Estcourt and Midland News.

Online media included: Timeslive.com, Timeslivemobile.com, Africanreporter.com, Albertonrecorder.com, Alexnews.com, Barbetontimes.com, Showme.co.za, Bedfordviewedenvalenews.co.za, Benonicitytimes.co.za, Bereamail.co.za, Bizcommunity.com, Boksburgadvertiser.co.za, Businesslive.co.za, Chatworthrisingsun.co.za, Citybuzz.co.za, Comarochronicle.co.za, Corridorgazette.co.za, Dispatchlive.co.za, Engineeringnews.co.za, Fourwaysreview.co.za, Highvelder.co.za, Hypertext (htxt.co.za) International Business Times (Ibtimes.co.uk), Joburgeastexpress.co.za, Kathorusmail.co.za, Kemptonexpress.co.za, Kormorand.co.za, Frugersdorpnews.co.za, Ladysmithgazette.co.za, Lenasiarisingsun.co.za, Lowvelder.co.za, Maritzburgsun.co.za, Middleburgobserver.co.za, Midrandreporter.co.za, Mpumalanganews.co.za, Mype.co.za, nelspruitpost.co.za, Newcastleadvertiser.co.za, Northcoastcourier.co.za, Rnews.co.za, Sabc.co.za.

Radio included: SABC 2, Metro FM, SAFM, Algoa FM, Lesedi FM, Igagasi FM, Cape Talk, Capricorn Voice, Centurian Rekord, Germiston City News, Hazyview Herald, Heidelberg Nigel Heraut, Highway Mail, Letaba Herald, Randfontein Herald, Smile FM, Classic FM, Groot Fm, Classic FM

Further media, local and international resulted from the above media.

eg. Ancient Devonian Fossils found during N2 construction (colour full page) in “Southern Region Supplement” colour SANRAL advertorial inserted into newspapers countrywide. August 2016.

2015

September 2015 press release by Wits media, on publication of coelacanth (*Serenichthys*) from Waterloo Farm – the oldest coelacanth in Africa from world’s oldest coelacanth nursery.

Print media included: Die Burger, The Times, The Herald, Daily Dispatch, Grocotts

Online media included: Daily Maverick, News 24, Times live, Phys.Org, Science in Africa, Sci-News.com, Europa news, Scientias, Le Scienze, Fossilworks, The Witness, Nature World News, Dark Matter News, Aquaworld, Seeker, Librarian, Moya-planeta, NetNature, The Announcer, Go South, The South Africa, Mype, South African News Gazette, Power FM, Go-Zuid-Africa, South Africa News, R News

2013

Publication in August 2013 of the scorpion *Gondwanascorpio*– the oldest terrestrial animal from Gondwana received media coverage following a media release by Wits media:

Print media included Die Burger, Saturday Star, Daily Dispatch, Herald, Grocott's

Online media included: SABC news.com, Times Live, News 24, IOL, Telegraph, Science in Africa, TG daily, The Cambodian Herald, Science and Environment, Armenian news, The Times of India, Aninews, NZ Herald News, Top News Arab Emirates, LiveScience, France 24, mediacub, News Daily, enca, Science Actualités

2006

Press release October 2006 with Wits media and Chicago press office on publication in *Nature* of *Priscomyzon*, the oldest lamprey in the world

Print media included: Burger, Mail and Guardian, Star, Cape Times, Daily Dispatch, Business Day, Burger, Citizen, Daily news, Herald, Rosebank Killarney Gazette. Talk of the Town Grocotts, New York Times (USA), Washington Post (USA), Chicago Tribune (USA)

Over 100 online media included: National Geographic News, Independent Online, News 24, Christian Science monitor, Mongabay.com, Daily Science News, United Press International, All headline News, Scientific Frontline, Tech News World, Underwater Times, Science Daily, Brothers Judd blog, spektrumdirekt, Sci/tech, chicagoist, ecommercetimes, spotlightingnews, physorg, allafrika, Pretoria news,

Television: SABC News

2001

Media on release of *Diplacanthus* description included:

Visfossiel van 360 miljoen jaar deur G'stad-paleontoloog ontdek. *Die Burger*: 3 Julie 2001
Prehistoric lagoon yields exciting find. *Eastern Province Herald*: 3 July 2001.

Print Media and Conversation

Gess, R.W. (2021). Fossil lamprey larvae from South Africa overturn assumptions about vertebrate origins. *The Conversation* 10 March 2021.

Gess, R.W. (2018). First tetrapods of Africa lived within the Devonian Antarctic. *Geobulletin*: 61:3. 28-31. <http://anyflip.com/cipj/zmof/>

Gess, R.W. (2018). Fossil find offers first evidence of four-legged aquatic ancestors in Africa. *The Conversation*: June 8, 2018.

Gess, R.W. (2017). Waterloo Farm: A high latitude Late Devonian (Famennian) Lagerstätten. *Toposcope (Journal of the Lower Albany Historical Society)*: XLVIII: 14-19.

Gess, R.W. (2007). The Oldest Fossil Lamprey in the World. *The Voyage of the Planet 2*: 28-35.

Gess, R.W. (1995). Unlocking Grahamstown's Past. *The Naturalist* 39(1): 20-25.

Gess, R.W. (1995). Taking the lid off a geological plant press. *The Phoenix* 8(2&3): 18-22.

Hiller, Norton, Robert Gess, Eric Anderson, and Billy de Klerk. (1994). A West-Gondwana Devonian Estuary. Grahamstown: Trustees of the Albany Museum. – published popular poster.

Magazine features about Dr Gess' Research

Painting the Past (2021). *AA traveller*, Spring 202. Pp 8-10.

Krap die Verlede Oop (2021). *AAreisiger*, Lente 2021. Pp 8-10.

Rethinking Origins of Vertebrates (2021). *Wits Review Magazine*, Volume 45, April edition 2021. Pp 14-16.

Fossil lamprey larvae from South Africa overturn textbook assumptions on vertebrate origins (2021), *Rhodes Alumna Magazine*, 2021. Pp 16-17.

Fish with legs found in the Eastern Cape (2018). *By the Way* (produced by SANRAL): August/September 2018. Pp 12-14

Whitehead, M (2018). Old Fourlegs and Other Fossils. *Country Life (South African)*: November 2018. Pp 64-67.

News section (2006). The oldest fossil lamprey in the world. *Quest*: 3:1.

Pinock, D. (2003). An ill-advised road and silver ghosts from the edge of time. *Getaway*: July 2003. Pp 128 – 131.

Warren-Brown, G. (2000). A Site Unique in Africa. *Leadership*: June 2000. P 75.

Books containing content supplied by Dr Gess on his research

Duvenhage, E (2021) *Inventors, Bright Minds and Other Science Heroes of South Africa*, Penguin (containing chapter on Dr Gess and his research entitled, 'Chipping away at a Mammoth task').

- Duvenhage, E (2020) *Uitvindings, Planmakers en ander Slimkoppe van Suid Africa*, LAPA Uitgewers (containing chapter on Dr Gess and his research entitled, 'Die Klipkapper wat Aanhou Soek).
- Bruton, M (2018) *The Fishy Smiths*. Struik Publishing, South Africa.
- Bruton, M. (2018). *The Amazing Coelacanth*. Penguin Random House, South Africa.
- Bruton, M. (2017). *The Annotated Old Fourlegs*. Struik Nature, Cape Town.
- Pryke, L.M. (2016). *Scorpion*. Reaktion Books, London.
- Ito, A. (2014). *Devonian Creatures*. Gijutsu Hyochron, Tokyo, Japan
- Chinsamy-Turan, A. (2014). *Fossils for Africa*. Cambridge University Press.
- Pinnock, D. (2008). *Love letters to Africa*. Double Storey Books. Landsdowne, South Africa.
- Eales, H. (2007). *Riddles in Stone*. Wits University Press. Johannesburg.
- Macrae, C. (1999) *Life Etched in Stone*. The Geological Society of South Africa, Johannesburg.

SciCom posts

Posts on Devonian Ecosystems Project Facebook page

Social media releases have been made in conjunction with Aviwe Matiwane on: Devonian terapods, *Africanaspis*, *Antarctilamna*, *Archaeopteris*, *Serenichthys*, *Dwykaselachus*, *Gondwanascorpio*, *Groenlandaspis*, *Octochara*, *Plesioselachus*, *Priscomyzon* and *Kowieria*

Blog Posts

Carte blanc guest blog (24 June 2016) N2 fossils by Rob Gess.

TV/Films/Documentaries

Various TV news items and short Youtube movies uploaded by media outlets.

2018: 6 minute documentary on the Devonian tetrapod discovery available on the Wits website, created by Rhodes Journalism department.

June 2017: Beautiful News short (1.5 minute) film "He found ancient treasure on the side of the road" uploaded on the 14th of June 2017 at www.beautifulnews.co.za. Received more than 230 000 views when first uploaded and continues to attract thousands of views in archived form.

2016: Carte blanche 9 minute documentary on Late Devonian discoveries along the N2, shown on the SABC

2016 Scifest Africa produced a 45 minute film of Dr Gess' Scifest keynote talk, "The Unusual coelacanth find and uploaded it to their site.

2015 Whilst in Australia Gess was interviewed for an ABC documentary

2014: Unearthing Grahamstown: Short (1.5 minute) documentary on Waterloo Farm filmed by Rhodes Journalism and uploaded to Youtube

2006: 50/50 5 minute documentary on the roadworks and fossil lamprey discovery shown on SABC

Exhibitions and displays

Ongoing: Preparing an outdoor roadside Devonian palaeotourism node beside the N2 in conjunction with SANRAL- to comprise a custom build picnic site with large information boards. Currently collaborating with artist Maggie Newman to prepare top quality scientifically accurate artists reconstructions representing 3 important fossil sites along the N2.

2019

Contributed to Devonian section of CoE display at National Science Festival, Grahamstown. 6th and 12th March 2018. The display and workshop were largely manned by Chris Harris. Some of the posters from the display, sponsored by the CoE were be incorporated into their mobile Palaeoheritage of South Africa display, exhibited, for example, at the Rand Show.

2018

Contributed to Devonian section of CoE display at National Science Festival, Grahamstown. 7th and 15th March 2018. The display and workshop were largely manned by Chris Harris. Some of the posters from the display, sponsored by the CoE were be incorporated into their mobile Palaeoheritage of South Africa display, exhibited, for example, at the Rand Show.

2017:

- 1) "Dr Gess and his fossils" a presentation as part of "The Literature & Ecology Colloquium 2017 – Rocks of Ages, Grounds of Being: Geology/Ecology/Literature". Rhodes University 20-22 October 2017.
- 2) Contributed to Devonian section of CoE display at National Science Festival, Grahamstown.
- 3) Dr Gess provided information on the End Devonian Extinction and Waterloo Farm as well as interviews for a UK Open University's Futurelearn platform coarse, ("Extinctions PAST

and Present”) facilitated by Professor Anusuya Chinsamy of UCT. This 5 week MOOC (Massive Open Online Course), was run in March and again in June and has been repeated several times since then. It was undertaken by thousands of people worldwide.

2015: A poster and display on the Waterloo Farm coelacanth were prepared and put on display at the Albany Museum in conjunction with the exhibition staff.

2014: Took two field excursions to an early Devonian invertebrate fossil site in a road gravel pit near Alexandria, one a Grade 10 Kingswood College Class, the other a first year Rhodes University Geology class.

2007: Museum focus week series on Waterloo Farm and lampreys: Africa's only Lamprey: Grahamstown's 360 million year old secret unveiled.

1994: Helped Dr De Klerk and artist L. Wright to design and produce the Waterloo Farm component of the Albany Museum palaeontology gallery.

Other Public lectures

“Waterloo Farm, Grahamstown, South Africa: the only known high-latitude Devonian tetrapod locality.” Symposium to launch the international stem tetrapod research group (hosted online from Uppsala, Sweden) 11 June 2021.

“First four-legged beasts in Africa and their environment – insight from the late Devonian Witpoort Formation” GSSA Lockdown Lectures (Zoom online) 21 September 2020

“Makhanda’s Late Devonian heritage” fieldtrip, talk and demonstration to Makhanda WESSA branch, Waterloo Farm and Albany Museum Devonian lab, 26 October 2019.

“Waterloo Farm and the Late Devonian” fieldtrip, talk and demonstration to Knysna U3A, Waterloo Farm and Albany Museum Devonian lab, 10 October 2019.

“Waterloo Farm: A high latitude Late Devonian (Famennian) Lagerstätten” Talk to visiting Leeds University Students, Albany Museum, Makhanda, 4 September 2019

“The Origin of Tetrapods” Rhodes Zoology Seminar Series, Rhodes Zoology Department, 4 September 2019

“360 million years ago Africa’s earliest known 4 footed animals lived in a place currently called Makhanda”. Makhanda U3A, Bowling Club, Makhanda, 1 November 2018

“First Footsteps in Africa: proudly brought to you from Makhanda”. Science Café series, Café D’Vine, Grahamstown, 31 October 2018

“The 360 million year old fossil estuary from Waterloo Farm near Grahamstown.” Friends of the Museum/ Border Historical Society. East London Museum 20th of June 2017.

“Finding Grahamstown’s very own coelacanth – the oldest in Africa” U3A Port Alfred. 23 March 2017.2016

“Waterloo Farm: A high latitude Late Devonian (Famennian) Lagerstätten” Grahamstown U3A, Grahamstown Bowling Club, 21 January 2016.

"The incredible Late Devonian (360 million year old) lagoonal fossils from Waterloo Farm near Grahamstown". Lower Albany Historical Society,Port Alfred,16 June 2016.Society).

"The incredible Late Devonian (360 million year old) lagoonal fossils from Waterloo Farm near Grahamstown". Port Alfred Astronomers Society, 6 October 2016

“Grahamstown's unique Late Devonian (360 million year old) fossil heritage”, given as part of the Albany Museum’s 160 anniversary celebrations, Albany Museum, 29 November 2016.

“360 Million Years Ago” given as part of the Battle of Waterloo centenary celebrations at Waterloo Farm, 13 June 2013.

“The Late Devonian Waterloo Farm estuarine ecosystem” Grahamstown Wildlife Society, Ganora Farm, Nieu Bethesda,18 September 2012

Academic citizenship

Journal reviews

2019: Review for Alcheringa

2017: Review for the Journal of Vertebrate Palaeontology

209, 2012 Reviews for South African Journal of Science

Committees and panels

2018 – present: member of the NSCF (Natural Science Collections Facility) Outreach & Communication Working Group.

2018 – present: invited member of the Subcommittee on Devonian Stratigraphy.

2018 – present: member of the South African Committee for Stratigraphy – Task group for Biostratigraphy..

2014 - present: member of the SACS workgroup for Cape stratigraphy.

2012-2015 Palaeontological representative on the Archaeology, History, Meteorites and Palaeontology Permit Review and Advisory Committee (AHMP – PR&AC) of the Eastern Cape Provincial Heritage Resources Agency (ECPHRA).

Occasional advisor to SAHRA regarding PIA policy eg invited participant to PIA policy Workshops, 12 January 2017, SAHRA boardroom 79 Roeland Street; 29 October 2019 (by skype), ESI boardroom.

Appendix 1: List of Palaeontological Impact Assessment reports from 2006-2016

Gess, R.W. (2016). Palaeontological Impact Assessment for Lake Farm Housing Development 7 pp. Rob Gess Consulting, Grahamstown.

Gess, R.W. (2015). Palaeontological Impact Assessment for new fuel station at Kenton on Sea, 6 pp. Rob Gess Consulting, Grahamstown.

Gess, R.W. (2015). Palaeontological Impact Assessment for the Proposed Inyanda - Roodeplaat Wind Energy Facility, 33pp. Rob Gess Consulting, Grahamstown.

Gess, R.W. (2014). Palaeontological Impact Assessment for St Francis Bay Waste Water Treatment Works, 7 pp. Rob Gess Consulting, Grahamstown.

Gess, R.W. (2014). Palaeontological Impact Assessment for Kati-Kati housing project, Kati-Kati, Cathcart, 10 pp. Rob Gess Consulting, Grahamstown.

Gess, R.W. (2014). Report on Phase 2 Palaeontological monitoring for Melkhout- Oyster Bay Transmission lines crossing the Baviaanskloof Formation at Mpofu Dam, 0 pp. Rob Gess Consulting, Grahamstown.

Gess, R.W. (2014). Palaeontological Heritage component of Basic assessment for the proposed upgrade of the R335 (Zuurberg Road), 37 pp. Rob Gess Consulting, Grahamstown.

Gess, R.W. (2014). Palaeontological Heritage Impact Assessment for Hintsabe mixed land use development near Peddie, 9 pp. Rob Gess Consulting, Grahamstown.

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