

Dr Rosemary Prevec (Pr. Sci. Nat.)

Curator and Head of Department of Earth Sciences

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Expertise: Palaeobotany, palaeoecology, biostratigraphy, taxonomy

Education:

Ph.D. Palaeobotany; University of the Witwatersrand, Johannesburg; RSA.

Ph.D. Plant Pathology; University of KwaZulu-Natal, Pietermaritzburg; RSA.

B.Sc. Honours (*cum laude*) - Plant Pathology; University of KwaZulu-Natal, Pietermaritzburg; RSA.

B.Sc. - Botany and Plant Pathology; University of KwaZulu-Natal, Pietermaritzburg; RSA.

As a palaeobotanist working primarily in the Karoo Basin of South Africa, my research focuses on the Permian plant fossils of Gondwana, particularly the taxonomy of the glossopterids and their fertile organs, and also their biostratigraphic, biogeographical and temporal distributions. Active research topics include: taxonomic approaches to the classification of *Glossopteris* leaves and fructifications; floral turnover at the Permian-Triassic transition; the use of Permian floral elements as a biostratigraphic tool within the Karoo and peripheral basins; insect-plant interactions during the Permian, as evidenced by damage to plants in the fossil record; reconstruction of Permian ecosystems and food webs; the taphonomy of plant fossils and their physical interpretation, Cretaceous floras and palaeoenvironments of the Eastern Cape, the role of fire in the geological and palaeontological record. I am also interested in scientific illustration and fossil reconstruction techniques, and use digital techniques to reconstruct past environments.

As a science communicator at the Albany Museum, I am interested in effective science teaching methods, development of materials that support the local school curriculum, the impact of multilingual museum engagement and displays. Heritage conservation forms an important part of my work, and I engage regularly with the heritage resources authorities as an advisor and Council Member of ECPHRA.

Affiliations, Professional Societies and Editorships:

- Research Associate, Botany Department, Rhodes University (2017-present);
- Research Associate, Geology Department, Rhodes University (2012-2016);
- Research Associate, Evolutionary Studies Institute, University of the Witwatersrand (2015-2017);
- South African Council for Natural Scientific Professions (SACNASP): Professional Natural Scientist (Geological Science: Palaeontology, 2013);
- Palaeontological Society of South Africa: President (2016-2018); Vice President (2014-2016); Executive Committee (2006-present);
- Geological Society of South Africa (2013-present): Elected Fellow (2016-);
- South African Commission for Stratigraphy (SACS) Biostratigraphy Task Group (Chairperson 2016-present);
- Council member of the Eastern Cape Provincial Heritage Authority (2016-2019);

- Board Member of the Kitching Fossil Exploration Centre, Nieu Bethesda (2016-);
- Associate Editor of *Palaeobotanist* (2015-present);
- Associate Editor of *Palaeontologia electronica* (2006-present).

Publications: Peer-reviewed, ISI-listed journals

1. 2015. Muir, R.A., Bordy, E.M. and Prevec, R. Lower Cretaceous deposit reveals first evidence of a post-wildfire debris flow in the Kirkwood Formation, Algoa Basin, Eastern Cape, South Africa. *Cretaceous Research* 56:161-179.
2. 2015. Bordy, E.M. and Prevec, R. Lithostratigraphy of the Emakwezini Formation, (Karoo Supergroup), South Africa. *South African Journal of Geology* 118:307-310.
3. 2014. Prevec, R. *Elatra*: A glossopterid fructification with a bipartite, hooded wing from the lower Permian of Madagascar and South Africa. *Review of Palaeobotany and Palynology* 210:119–139.
4. 2014. Labandeira, C.C. and Prevec, R. Plant paleopathology and the roles of pathogens and insects. *International Journal of Paleopathology* 4:1-16.
5. 2011. Bordy, E.M., Linkermann, S. and Prevec, R. Palaeoenvironmental aspects of some invertebrate trace fossils from the Mid- to Upper Permian Middleton Formation (Adelaide Subgroup, Beaufort Group, Karoo Supergroup), Eastern Cape, South Africa. *Journal of African Earth Sciences* 61:238-244.
6. 2011. Prevec, R. A structural re-interpretation and revision of the type material of the glossopterid ovuliferous fructification *Scutum* from South Africa. *Palaeontologia africana* 46:1-19.
7. 2011. McLoughlin, S., Slater, B., Hilton, J. and Prevec, R. New vistas on animal-plant-fungal interactions in the Permian-Triassic of Gondwana. *GFF* 133, 66-67 (extended abstract).
8. 2010. Prevec, R., Gastaldo, R.A., Neveling, J., Reid, S.B. and Looy, C.V. An autochthonous glossopterid flora with latest Permian palynomorphs and its depositional setting in the *Dicynodon* Assemblage Zone of the southern Karoo Basin, South Africa. *Palaeogeography, Palaeoclimatology, Palaeoecology* 292(3-4):391-408.
9. 2009. Prevec, R., Labandeira, C.C., Neveling, J., Gastaldo, R.A., Bamford, M.K. and Looy, C.V. Portrait of a Gondwanan ecosystem: a new Late Permian locality from Kwazulu-Natal, South Africa. *Review of Palaeobotany and Palynology* 156:454-493.
10. 2009. Bordy, E.M. and Prevec, R. Lithostratigraphic description of the Emakwezini Formation. *Catalogue of the South African Lithostratigraphic Units: South African Committee for Stratigraphy*.
11. 2009. Aristov, D.S., Prevec, R. and Mostovski, M.B. New and poorly known grylloblattids (Insecta: Grylloblattida) from the Lopingian of the Lebombo Basin, South Africa. *African Invertebrates* 50 (2): 279-286.
12. 2008. Bordy, E.M. and Prevec, R. Sedimentology, palaeontology and palaeo-environments of the Middle (?) to Upper Permian Emakwezini Formation (Karoo Supergroup, South Africa). *South African Journal of Geology* 111(4): 429-458.
13. 2008. Prevec, R., McLoughlin, S. and Bamford, M. Novel double wing morphology revealed in a South African ovuliferous glossopterid fructification: *Bifariala intermittens* (Plumstead 1958) comb. nov. *Review of Palaeobotany and Palynology* 150:22-36.
14. 2005. Gastaldo, R.A., Adendorff, R., Bamford, M., Labandiera, C.C., Neveling, J. and Sims, H. Taphonomic trends of macrofloral assemblages across the Permian-Triassic boundary, Karoo Basin, South Africa. *Palaios* 20:480-498.
15. 2003. Adendorff, R., Bamford, M.K. and McLoughlin, S. *Liknopetalon*: a review of a rare gondwanan, Permian pteridophyte. *Review of Palaeobotany and Palynology* 126:83-101.
16. 2002. Adendorff, R., McLoughlin, S. and Bamford, M.K. A new genus of ovuliferous glossopterid fructifications from South Africa. *Palaeontologia africana* 38:1-17.

17. 2000. Adendorff, R. and Rijkenberg, F.H.J. Scanning electron microscopy of direct host leaf penetration by urediospore derived infection structures of *Phakopsoraapoda*. *Mycological Research* 104 (3): 317-324.
18. 1995. Adendorff, R. and Rijkenberg, F.H.J. New Report on rust on kikuyu grass in South Africa caused by *Phakopsoraapoda*. *Plant Disease* 79:1187.

Public interest publications

1. (in press) Prevec, R. Palaeontology of the Eastern Cape. *In Eastern Cape: Home of Legends*. Published by the National Heritage Council in association with the Eastern Cape Office of the Premier.
2. (in press) Hiller, N., Prevec, R. and de Klerk, W.J. Landform and Geology. *In Grahamstown: a natural and cultural history*. WESSA, Makhanda.
3. 2018. Matiwane, A. and Prevec, R. Plant fossils have a lot to teach us about Earth's history. *The Conversation*, March 08. <https://theconversation.com>.
4. 2016. Prevec, R. *Glossopteris* in South Africa. *In Anheusser, C.R., Viljoen, M.J. and Viljoen, R.P. (eds) Africa's Top Geological Sites; 35th International Geological Congress Commemorative Volume*. Struik Nature, Cape Town. pp. 88-94.
5. 2012. The life of coal. *Quest* 8(4):26-31.
6. 2009. Prevec, R. and Bordy, E.M. Book review: *Plant–Arthropod Interactions in the Early Angiosperm History – Evidence from the Cretaceous of Israel*, edited by V. Krassilov and A. Rasnitsyn: *African Entomology* 17(1): 120-121.
7. 2006. Miller, I. and Prevec, R. Moving Fingers: Palaeobotany in the Digital Age: Unearthing the Future of Taxonomy. *Palaeontologia electronica* Vol. 9, Issue 2.3E 3p, 95KB; http://palaeo-electronica.org/toc9_2.htm
8. 2006. Prevec, R. The power of plants: how ancient forests drive SA's economy. *Science in Africa* Issue. 46, February. <http://scienceinAfrica.co.za/2006/february/coal.htm>

International conference ABSTRACTS (last 10 years)

- 2018: **Matiwane, A.**, Prevec, R. A new approach to *Glossopteris* leaf taxonomy embracing morphometric analyses The Fossil Week: the 5th International Palaeontological Congress, Paris, France (July).
- 2018: **Moyo, S.**, Prevec, R., Matiwane, A., Kirkaldy, B., Nel, A. Preliminary report on the first mid-Permian ecosystem from South Africa, as revealed by a new Lagerstätte near Sutherland, Northern Cape. The Fossil Week: the 5th International Palaeontological Congress, Paris, France (July).
- 2018: **Prevec, R.**, Matiwane, A. A missing link in *Glossopteris* evolution: new species of *Lidgettonia* from a middle Permian Lagerstätte in South Africa. The Fossil Week: the 5th International Palaeontological Congress, Paris, France (July).
- 2018: Kirkaldy, B.P, Prevec, R., **Barber-James, H.**, Holland, A.J., Nel, A. Exploring the biogeography and ecology of extant Plecoptera of South Africa with reference to ancient middle Permian fossil forms from the Onder Karoo locality. Joint XV International Conference on Ephemeroptera, XIX International Symposium on Plecoptera. 03-08 June 2018, Aracruz, Brazil (June).
- 2016: **Prevec, R.** A large collection of *Rigbyarberioides* fructifications from South Africa supports glossopterid affinities. Abstract: X International Organisation of Palaeobotany Conference, 23-28 October, Salvador, Brazil. *Boletín de la Asociación Latinoamericana de Paleobotánica y Palinología* 16:248. ISSN 3025-0121.
- 2013: **Labandeira, C.C.** and Prevec, R. The origin and early evolution of leaf mining insects in the wake of the end-Permian ecological crisis. Geological Society of America Annual Meeting, Denver, 27-30 October.

- 2013: Spencer, K., **Gastaldo, R.A.**, Neveling, J., Prevec, R., Geissman, J.W. and Kamo, S.L. The Late Permian Stratigraphy of the basal Tweefontein section, Eastern Cape Province, South Africa. Geological Society of America Annual Meeting, Denver, 27-30 October.
- 2013: Langwenya, M., **Gastaldo, R.A.**, Neveling, J., Prevec, R., Geissman, J.W. and Kamo, S.L. The Late Permian stratigraphy of the upper Tweefontein section, Eastern Cape Province. Geological Society of America Annual Meeting, Denver, 27-30 October.
- 2012: **Geissman, J.W.**, Gastaldo, R.A., Neveling, J., Prevec, R., Kamo, S., Spencer, K., Langwenya, M. Paleomagnetism of an uppermost Permian section in the Lootsberg Pass area, central Karoo Basin: What remanence signal is recorded in the Permo-Triassic boundary sequences in the Karoo Basin? Abstract 1485197, Congress of the American Geophysical Union, San Francisco, Calif., 3-7 Dec.
- 2012: **Prevec, R.**, Sciscio, L., Looy, C. and Gastaldo, R.A.G. Well-preserved impression/compressions of *Trizygiaspiciosa*, including the first cones and spores of this widespread Gondwanan sphenophyte, from the Latest Permian of South Africa. International Organisation of Palaeobotany Congress, Tokyo, Japan (July).
- 2012: **Labandeira, C.C.** and Prevec, R. Insect herbivore diversification after the end-Permian crisis: evidence from leaf miners. Congress of the European Society for Evolutionary Developmental Biology, Lisbon.
- 2011: **McLoughlin, S.**, Slater, B., Hilton, J. and Prevec, R. 2011. New vistas on animal-plant-fungal interactions in the Permian-Triassic of Gondwana. GFF 133, 66-67. (extended abstract)
- 2008: **Gastaldo, R.A.**, Prevec, R. and Neveling, J. Taphonomic constraints on the Permian-Triassic megafloreal record in the Karoo Basin, South Africa: TERRA NOSTRA 2008/2, p. 88-89. (GSA).

National conference presentations (last 5 years)

- 2018: **Cawood, R.**, Moyo, S., Prevec, R., Nel, A. Palaeoenvironmental reconstruction of middle Permian ecosystems, inferred from insect fossils of ice crawlers (Grylloblattodea) from the Onder Karoo, South Africa. Proceedings of the 20th biennial conference of the Palaeontological Society of Southern Africa, Bloemfontein (July), p. 36.
- 2018: **Dauids, L.**, Prevec, R., Matiwane, A., Nel, A. Insect fauna and associated plant-insect interactions at the Ouberg Pass and Onder Karoo locality: implications for the evolution of insect utilization of plants in the middle Permian of the Karoo Basin of South Africa. Proceedings of the 20th biennial conference of the Palaeontological Society of Southern Africa, Bloemfontein (July), p. 43.
- 2018: **Kirkaldy, B.**, Prevec, R., Barber-James, H., Holland, A. The past meets the present: exploring the biogeography of extant Plecoptera of South Africa with reference to ancient middle Permian fossil forms from the Onder Karoo locality near Sutherland Proceedings of the 20th biennial conference of the Palaeontological Society of Southern Africa, Bloemfontein (July), p. 20.
- 2018: **Matiwane, A.**, Prevec, R. A new approach to *Glossopteris* leaf taxonomy embracing morphometric analyses. Proceedings of the 20th biennial conference of the Palaeontological Society of Southern Africa, Bloemfontein (July), p. 21.
- 2018: **McKay, I.**, Mudau, M., Prevec, R., Gess, R.W., Harris, C. Collaborative palaeosciences engagement: Grahamstown Science Festival as a case study. Proceedings of the 20th biennial conference of the Palaeontological Society of Southern Africa, Bloemfontein (July), p. 22.
- 2018: **Moyo, S.**, Prevec, R., Matiwane, A., Nel, A., Garrouste, R., Day, M.O. Preliminary report on the first mid-Permian ecosystem from South Africa, as revealed by a new Lagerstätte near Sutherland, Northern Cape. Proceedings of the 20th biennial conference of the Palaeontological Society of Southern Africa, Bloemfontein (July), p. 23.
- 2018: **Prevec, R.**, Matiwane, A. A missing link in *Glossopteris* evolution: new species of *Lidgettonia* from a middle Permian Lagerstätte in South Africa. Proceedings of the 20th biennial conference of the Palaeontological Society of Southern Africa, Bloemfontein (July), p. 26.
- 2018: Zozo, E., Nel, A., Garrouste, R., Moyo, S., Bellingan, T.A., Villet, M.H., Prevec, R. Phylogenetic relationships of the Permian 'cicada-like' family Pereboriidae (Insecta: Hemiptera: Pereborioidea).

Proceedings of the 20th biennial conference of the Palaeontological Society of Southern Africa, Bloemfontein (July), p. 42.

2016: **Prevec, R.** *Rigbya* revisited: a large new collection from KwaZulu-Natal confirms glossopterid affinities and associated *Glossopteris* leaf morphotype. 19th Biennial Conference of the Palaeontological Society of Southern Africa, Stellenbosch (July).

2016: **Botha-Brink, J.**, Huttenlocker, A. K., Smith, R. M. H., Prevec, R., Modesto, S. P. and Viglietti, P. New data on the Permo-Triassic Boundary from the Karoo Basin of South Africa. 19th Biennial Conference of the Palaeontological Society of Southern Africa, Stellenbosch (July).

2016: **Matiwane, A.** and Prevec, R. Investigations of a *Glossopteris* flora near Sutherland: a new approach embracing morphometric and ecological aspects. 19th Biennial Conference of the Palaeontological Society of Southern Africa, Stellenbosch (July).

2014: **Bamford, M.K.** and Prevec, R. Charcoal analysis provides new insights into the plant diversity of the Lower Cretaceous Kirkwood Formation. 18th Biennial Conference of the Palaeontological Society of Southern Africa, Johannesburg (July).

2014: **Prevec, R.** and J. Lavin. The coal floras of South Africa: to PIA or not to PIA? 18th Biennial Conference of the Palaeontological Society of Southern Africa, Johannesburg (July).

2014: **Neveling, J.**, Gastaldo, R.A., Prevec, R., Looy, C.V., Bamford, M.K., Kamo, S. and Geissman, J. Early Triassic *Glossopteris*: An examination of stratigraphic evidence. 18th Biennial Conference of the Palaeontological Society of Southern Africa, Johannesburg (July).

2014: **Muir, R.**, Bordy, E. and Prevec, R. Sedimentology and palaeobotany of an Early Cretaceous locality in the Kirkwood Formation, Algoa Basin, Eastern Cape. 18th Biennial Conference of the Palaeontological Society of Southern Africa, Johannesburg (July).

2013: **Prevec, R.** Plant fossil heritage of the Karoo: More than meets the eye. Geological Society of South Africa, Geoheritage and Education in South Africa: Geoheritage Series No.2. 8th – 11th September 2013.

2013: Büttner, S., Prevec, R., Proctor, B. The Cape-Karoo Geotour: A self-guided, web-based geological journey from the Cape coast to the GraaffReinet area. Geoheritage and Education in South Africa: Geoheritage Series No.2. 8th – 11th September.

Teaching experience

Student Supervision and postdoctoral fellows:

2018 - present: Postdoctoral Fellow, Dr Sydney Moyo;

2016 - present: Ph.D student, Ms AviweMatiwane;

2018 - present: Masters student, Mr Benjamin Kirkaldy;

2018: Honours student project, Mr EkhonaZozo (Entomology Department, Rhodes University);

2018: Honours student project, Ms Rebecca Cawood (Entomology Department, Rhodes University), first class pass;

2016: Honours student project, Ms MaikeDiekmann (Geology Department, Rhodes University), first class pass;

2016: Honours student project, Mr Jonas Vijverberg (Geology Department, Rhodes University), first class pass;

2014: Honours student project, Mr Robert Muir (Geology Department, University of Cape Town), first class pass;

2011: Third year student project, Ms Lara Sciscio (Botany Department, Rhodes University).

Lecturing (last 5 years):

2018: Geology Honours – two guest lectures and practical on applied palaeobotany at University of Cape Town;

2018: Botany 201 – guest lecture and practical at Rhodes University;

2017: Geology Honours – two guest lectures and practical on applied palaeobotany at University of Cape Town;

2017: Botany 300 – two guest lectures on palaeobiogeography at Botany Department, Rhodes University;

2016: Geology 301 – Course co-ordinator for palaeontology component; 1.5 weeks of general palaeobotany, taphonomy, plant diversity, lectures in Geology Dept., Rhodes University; 1 prac.; test and examinations.

2016: Geology Honours – two guest lectures and practical on applied palaeobotany at University of Cape Town;

2015: Geology 301 – Course co-ordinator for palaeontology component; 1.5 weeks of general palaeobotany, taphonomy, plant diversity, lectures in Geology Dept., Rhodes University; 1 prac.; test and examinations.

2015: Geology Honours – two guest lectures and practical on applied palaeobotany at University of Cape Town;

2014: Geology 301 – 1 week of general palaeobotany, taphonomy, plant diversity, lectures in Geology Dept., Rhodes University; 1 prac.; test and examinations.

2013: Geology 302 – four days of general palaeobotany lectures in Geology Dept., Rhodes University; 1 prac.; test and examinations.