



Research profile: Dr I Germishuizen

01/08/2023

## Research Profile

Dr Germishuizen's research focus at the ICFR is ecological modelling and geospatial analysis for risk evaluation in natural systems and plantation forests. Her expertise is central to ICFR's research projects and contributes to research groups at many universities and forestry companies in South Africa. She has an extensive publication record, serves on key forestry committees and bodies, presents regularly at international conferences, and is involved in collaborative projects and the co-supervision of students at several South African universities, making an impact on forestry and the development of forestry scientists beyond her role at the ICFR.

Research Gate: <https://www.researchgate.net/profile/Illaria-Germishuizen>

ORCID: <https://orcid.org/0000-0003-0078-1137>

## Publication Record

### ICFR Reports

**Germishuizen I.** A site classification for macadamia orchards in South Africa. *ICFR Report TRC2023/602/01.*

**Germishuizen I.** Baboon damage impact: project update. *ICFR Report TRC2023/304/01.*

Sivparsad B, **Germishuizen I.** Six-year growth results of commercial eucalypt clone x chemical x site interaction trials in the warm temperate Forestry Zone of KwaZulu-Natal. *ICFR Report TRC2023/303/01.*

**Germishuizen I,** Gevers CR, Hurley BP. 2022. *Leptocybe invasa* and its biological controls: Key results from the 2019-2021 monitoring. *ICFR Report TR2022/301/01.*

**Germishuizen I.** *Leptocybe invasa* National Monitoring Program: 2022 results and 3-year trends. *ICFR Report TR2022/301/02.*

Sivparsad BJ, **Germishuizen I.** Five-year growth results of commercial eucalypt clone x chemical x site interaction trials in the Warm Temperate Forestry Zone of KwaZulu-Natal. *ICFR Report TRC2022/303/01.*

**Germishuizen I.** A site classification for macadamia orchards in South Africa. *ICFR Report TRC2022/602/01.*

**Germishuizen I.** A site classification for macadamia orchards in South Africa, *ICFR Report TRC2022/602/02.*

**Germishuizen I,** Mahomed M. 2021. A site classification for macadamia orchards in South Africa. *ICFR Report TRC2021/602/03.*

**Germishuizen I.** 2021. Impact of baboon damage on thinning selection and stand volume. *ICFR Report TR2021/304/01.*

**Germishuizen I, Hurley B.** 2021. *Leptocybe invasa* National Monitoring Programme: 2021 results and 3-year trends. *ICFR Report TR2021/301/02.*

**Germishuizen I, Hurley BP.** 2021. *Leptocybe invasa* National Monitoring Programme: 2020 results and 3-year trends. *ICFR Report TRC2021/303/01.*

**Germishuizen I.** 2020. Impact of baboon damage on volume growth and thinning selection in pine plantations. *ICFR Report TRC2020/304/01.*

Sivparsad BJ, **Germishuizen I**, Conlong DE, Webster T, Morris AR. 2020. Abundance and diversity of white grubs in KwaZulu-Natal: results of the 2017-2019 monitoring programme. *ICFR Report TRC2020/303/01.*

Sivparsad BJ, **Germishuizen I**, Conlong DE, Webster T. Morris, AR. 2020. White grub pot trials and monitoring: a summary of research findings with practical recommendations. *ICFR Report TRC2020/303/02.*

Sivparsad BJ, **Germishuizen I**, Morris AR. 2020. Reducing the economic impact of the eucalypt snout beetle in South Africa. *ICFR Report TRC2020/303/03.*

Sivparsad BJ, **Germishuizen I.** 2020. Three-year growth results of commercial eucalypt clone x chemical x site interaction trials in the Warm Temperate Forestry Zone of KwaZulu-Natal. *ICFR Report TRC2020/303/04.*

**Germishuizen I**, Gevers CR, Hurley BP. 2020. *Leptocybe invasa* and its biological controls: Key results from the 2016-2019 monitoring *ICFR Report TRC2020/301/01.*

**Germishuizen I.** 2019. Baboon damage in pine plantation forests and its effects on tree growth. *ICFR Report TRC2019/304/01.*

**Germishuizen I.** 2019. *Leptocybe invasa* National Monitoring programme: 2019 results and 3-year trends. *ICFR Report TRC2019/301/01.*

**Germishuizen I.** *Leptocybe invasa* National Monitoring Programme: 2018 results and 2-year trends. *ICFR Technical Report 01/2019.*

Sivparsad BJ, Nxumalo TP, **Germishuizen I**, Morris AR. 2018. Insights into the epidemiology of wattle rust (*Uromykladium acaciae*) in South Africa: results of the 2015-2017 monitoring programme. *ICFR Technical Note 08/2018.*

Sivparsad BJ, **Germishuizen I**, Conlong DE, Webster T, Morris AR. 2018. Abundance and diversity of white grubs in KwaZulu-Natal: interim results of the 2017-2018 monitoring programme. *ICFR Technical Note 03/2018.*

Sivparsad BJ, **Germishuizen I.** 2018. Pot trial 2: refined screening of alternative chemical and biological products against larvae of *Schizonycha affinis* (Coleoptera: Scarabaeidae) on wattle and eucalypt seedlings. *ICFR Technical Note 05/2018.*

Sivparsad BJ, **Germishuizen I**, Little K, Nadel R. 2018. The effect of regeneration method (coppice vs replant) on the susceptibility of a *Eucalyptus grandis* x *E. camaldulensis* clone to *Leptocybe invasa*. *ICFR Technical Note 01/2018*.

**Germishuizen I**, Hurley BP. 2017. Early results from the South African *Leptocybe invasa* National Monitoring Programme. *ICFR Technical Note 15/2017*.

Nxumalo T, Morris A, **Germishuizen I**. 2017. Quantifying the impact of *Uromykladium acaciae* (wattle rust) on black wattle (*Acacia mearnsii*) growth and productivity. *ICFR Technical Note 14/2017*.

Verleur PM, Croft PC, **Germishuizen I**. The South African *Sirex noctilio* Control Programme: Monitoring and biological control guidelines for *Sirex noctilio* infestations in the summer rainfall regions of South Africa. *ICFR Technical Note 07/2017*.

Peerbhay KY, **Germishuizen I**, Morris A, Ismail R. Spatial technologies for mapping baboon-related damage in commercial pine plantations of the Mpumalanga province, South Africa. *ICFR Technical Note 06/2017*.

**Germishuizen I**. 2015. Climate change: An update on climate projections and their implications for the South African forestry sector. *ICFR Technical Note 01/2015*.

**Germishuizen I**, Croft P. The *Sirex noctilio* National Monitoring Programme: Two years results. *ICFR Technical Note 01/2014*.

**Germishuizen I**. An analysis of the climate patterns in the forestry areas of Mpumalanga and KwaZulu-Natal in the context of climate change: 1950-2007. *ICFR Technical Note 01/2013*.

**Germishuizen I**. Report on the International Conference on Extending Forest Inventory over Space and Time. May 18-22, Québec City, Québec, Canada. *ICFR Bulletin 06/2009*.

**Germishuizen I**. A review of the current knowledge of the effects of re-fertilisation on the growth of eucalypts. *ICFR Bulletin 09/2007*.

**Germishuizen I**, Smith CW. Fertilising eucalypts at establishment in the summer rainfall region of South Africa: A critical review. *ICFR Bulletin Series 11/2007*.

### Peer-reviewed Publications

Pham NQ, Wingfield MJ, Marincowitz S, Tanga AA, Tiki KR, Kassie WB, Hurley BP, **Germishuizen I**, Lawson SA, Healey MA, Wondafrash M. (2023). First report of the wattle rust pathogen, *Uromykladium acaciae* (Raveneliaceae, Pucciniales) in Ethiopia. *Forestry: An International Journal of Forest Research*, 2023, 1-8 <https://doi.org/10.1093/forestry/cpad040>

Ferreira R, Peerbhay K, Louw J, Morris A, **Germishuizen I**, Morris A, Lottering R. (2023). A Tree Level analysis of baboon damage in commercial forest stands using deep learning techniques. *Southern Forests 2023*, 85(2): 01-0 <https://doi.org/10.2989/20702620.2023.2199164>.

Kaptein ND, Clulow AD, Toucher M, Everson CS, Dovey SB, **Germishuizen I**. (2023). Plantation water productivity (PWPwood) and not water-use efficiency (WUE) as the measure of commercial plantation yield improvement: a review. *Southern Forests 2023*, 85(1): 01-10. <https://doi.org/10.2989/20702620.2023.2192372>.

Peerbhay K, **Germishuizen I**, Lottering R, Naicker R. (2022). Remote sensing wattle rust induced defoliation across black wattle timber plantations in Southern Africa. *International Journal of Remote Sensing* 2022, 43(6): 2212-2226.

Ferreira R, Peerbhay K, Louw J, **Germishuizen I**, Morris A, Ismail R. (2022). A Spatio-temporal analysis of baboon damage using Sentinel-2 imagery and Extreme Gradient Boosting. *Geocarto International* 2022, 37(10): 2931-2943: [DOI 10.1080/10106049.2020.1837259](https://doi.org/10.1080/10106049.2020.1837259)

Van de Merwe JP, **Germishuizen I**, Clarke C, Mansfield SD. (2022). The impact of soil parent material, altitude and climate on tree form and wood properties of plantation grown *Pinus Patula* in Mpumalanga, South Africa. *Holzforschung - International Journal of the Biology, Chemistry, Physics and Technology of Wood*: <https://doi.org/10.1515/hf-2022-0126>

Gevers CR, Slippers B, **Germishuizen I**, Dittrich- Schröder G, Hurley BP. (2021). The distribution and diversity of *Leptocybe invasa* (Hymenoptera: Eulophidae) and its gall associates in South Africa. *Southern Forests* 83(3), 196-204.

Sivparsad BJ, Morris AR, **Germishuizen I**. (2020). Pot trial screening of chemical, natural and biological insecticides for the management of white grubs (Coleoptera: Scarabaeidae) during eucalypt and wattle establishment. *Southern Forests* 82: 303-311.

Oumar MS, Peerbhay K, **Germishuizen I**, Mutanga O, Oumar Z. (2019). Detecting canopy damage caused by *Uromycladium acaciae* on South African Black Wattle Forest compartments using moderate resolution satellite imagery. *South African Journal of Geomatics*: Vol.8 (1) March 2019

Peerbhay K, **Germishuizen I**, Ismail R. (2018). Can remote sensing detect, monitor and track baboon damages Pinus plantations located in South Africa? *Journal of Spatial Science*. DOI 10.1080/14498596.2018.1453882.

**Germishuizen I**, Peerbhay K, Ismail R. (2017). Modelling the risk of bark stripping by baboons (*Papio ursinus*) in commercial pine plantations of the Mpumalanga Province, South Africa. *Wildlife Research* 44(4):298-308. DOI: 10.1071/WR16170

**Germishuizen I**, Mzinyane T. Commercial Forestry. In: South African Risk and Vulnerability Atlas. Mambo J. and Facer K (Eds). (2017). Department of Science and Technology, South Africa. ISBN 978-0-992236-06-9

Roux J, **Germishuizen I**, Nadel R, Lee DJ, Wingfield MJ, Pegg GS. (2015). Risk assessment for *Puccinia psidii* becoming established in South Africa. *Plant Pathology* 64(6):1326-1335. DOI 10.1111/ppa.12380.

**Germishuizen I**, Gardner RAW. 2015. A tool for identifying potential *Eucalyptus nitens* seed orchard sites based on climate and topography. *Southern Forests*. *Southern Forests* 77(2): 123-130. DOI 10.2989/20702620.2014.984554.

**d'Inzillo Carranza (Germishuizen) I**, Rowe-Rowe TD. (2013). *Lutra maculicollis* species profile for "Mammals of Africa", Eds Kingdon J., Happold D., Butynski T, Hoffman M, Happold M and Kalina J. . *Bloomsbury, London*. ISBN 978-1-4081-2255-6.

**Germishuizen I**. (2011). Risk mapping for forestry: The ICFR perspective. Conference Proceeding, DAAD 2<sup>nd</sup> International Workshop: Forests in climate change research and policy: The role of forest

management and conservation in a complex international setting. (Universities of Gottingen and Stellenbosch). Pietermaritzburg 1-7 December 2011.

Louw JH, **Germishuizen I**, Smith CW. (2011). A stratification of the South African forestry landscape based on climatic parameters. *Southern Forests 2011*, 73(1): 51–62. DOI 10.2989/20702620.2011.574825.

Boitani L, Corsi F, De Biase A, **d’Inzillo Carranza (Germishuizen) I**, Ravagli M, Reggiani G, Sinibaldi I, Trapanese P. (1998). AMD African Mammals Databank - A Databank for the Conservation and Management of the African Mammals Vol 1 and 2. Report to the Directorate-General for Development (DGVIII/A/1) of the European Commission. Project No. B7-6200/94-15/VIII/ENV. Bruxelles 1998. pp 1174 ISBN 8887736006.

Boitani L, Sinibaldi I, Corsi F, De Biase A, **d’Inzillo Carranza (Germishuizen) I**, Ravagli M, Reggiani G, Rondinini C, Trapanese P. Distribution of medium- to large-sized African mammals based on habitat suitability models. (2008). *Biodiversity and Conservation* 17: 605-621. DOI 10.1007/s10531-007-9285-0.

Perrin MR & **d’Inzillo Carranza (Germishuizen) I**. (1999). Capture, immobilization and measurements of the spotted-necked otters in the Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 29(2), pp 52-53.

Perrin MR & **d’Inzillo Carranza (Germishuizen) I**. (2000). Activity patterns of the spotted-necked otter in the Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30(1), pp 1-7.

Perrin MR & **d’Inzillo Carranza (Germishuizen) I**. (2000). Habitat use by spotted-necked otters in the Kwa- Zulu Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30(1), pp 8-14.

Perrin MR, **d’Inzillo Carranza I (Germishuizen)**, Linn IJ. (2000). Use of space by the spotted-necked otter in the Kwa-Zulu Natal Drakensberg, South Africa. *South African Journal of Wildlife Research* 30(1), pp 15-21.

### Student Supervision

Mngadi M (Postdoc., 2023-2025), Remote sensing of forests for the development of a national forest plantation health monitoring program. UKZN, Supervisors: **Germishuizen I**, Mutanga O.

MacMahon Chloe (Hons., 2023-2023), Introducing temporal dimensions for improved weather data interpolation. UP, Supervisors: Bosman A, **Germishuizen I**, Slippers B.

Keetse H (MSc., 2022-2023), Investigating the impact and management of *eucalyptus* snout beetle. UP, Supervisors: Sivparsad B, **Germishuizen I**, Hurley B.

Kombora N (MSc., 2023-2024), Investigating the impact of the Eucalyptus snout beetle (*Gonipterus* sp. 2) using artificial and natural defoliation methods. UKZN, Supervisors: Sivparsad B, **Germishuizen I**, Hurley B.

Majavu C (MSc., 2023-2024), Species diversity and drivers of infestations of the soil insect pest complex associated with forest plantation trees. UP, Supervisors: Sivparsad B, **Germishuizen I**, Hurley B.

Ferreira R (PhD.,2021-2023), Remote sensing and transpiration. *NMU, Supervisors: **Germishuizen I**, Louw J (NMU), Peerbhay K (Sappi).*

Kaptein N (PhD.,2019-2023), Water use by commercial forestry species. *UKZN, Supervisors: **Germishuizen I**, Clulow A (UKZN), Toucher M (SAEON).*

Schwartz A (MSc., 2022-2024), Pine Wood Value and Volume Losses due to Baboon damage. *SU, Supervisors: **Germishuizen I**, Wessels B (SU).*

Dr Bancole B (PostDoc., 2022-2024), Integrated pest management strategies for pests and diseases affecting commercial forestry in South Africa *UKZN, Supervisors: **Germishuizen I**, Sivparsad B.*

Polaki T (MSc., Graduated with Distinction 2023), Producing rain and temperate surfaces using weather and climate data. *UP, Supervisors: **Germishuizen I**, Bosman A (UP).*

Mfuni T (MSc., Graduated 2022), Projecting future climate, forest yield and site suitability for *Eucalyptus Grandis Urophylla* in coastal Zululand. *Stellenbosch, Supervisors: **Germishuizen I**, Drew D (SU).*

Oluwaseun G (Msc., Graduated 2021), Performance of process-based models in predicting productivity of *Eucalyptus grandis x urophylla* in South Africa. *Stellenbosch, Supervisor: **Germishuizen I.***

Oumar MS (MSc., Graduated 2020), Assessing the utilities of the Landsat 8 multispectral sensor and the MaxEnt species distribution model to monitor *Uromycladium acaciae* damage in KwaZulu-Natal, South Africa. *UKZN, Supervisor: **Germishuizen I**, Peerbhay K (Sappi).*

Sibhakabhaka T (MSc., Graduated 2020), The application value and most appropriate mapping scales for site classification and evaluation in the South African forest industry. *NMU, Supervisor: **Germishuizen I.***

Ferreira R (MSc., Graduated 2020), Applying High-Resolution Remote Sensing to Quantify Baboon Damage at a Sub-compartment level in Pine Stands in the Mpumalanga Escarpment Region of South Africa. *NMU, Supervisor: **Germishuizen I**, Peerbhay K (Sappi).*