

Five women driving the future of forestry through science

To celebrate the United Nations International Day for Women and Girls in Science, Forestry South Africa (FSA) has launched two complementary campaigns to amplify women's voices, inspire more women to pursue STEM careers in forestry, and challenge outdated perceptions of the forestry sector.

Modern forestry is not just about growing trees. It spans a wide range of STEM careers, including genetics, climate science, ecology, data science, engineering, logistics, planning and applied research. Across South Africa, women are leading important research in these fields, improving forest productivity, strengthening climate resilience and delivering tangible social and economic benefits, particularly in rural communities.

"It's not enough to recognise women in science – we need commitment and transformation across all industries and sectors," says Dr Yolandi Ernst, senior lecturer at the Global Change Institute. "It sends a message to young girls that careers in environmental science, climate research and forestry are not only possible, but vital. Climate-resilient landscapes are built through science-based decision-making, and women are already central to that process."

Five women give voice for sustainable forestry

The first FSA campaign is a series of thought-leadership pieces featuring women in forestry science that explore how research and innovation enable the sector to respond to global climate challenges, support national economic growth, and sustain rural livelihoods. The five women contributing to this campaign are:

- Professor Ilaria Germishuizen – Research Director, Institute for Commercial Forestry Research.
- Professor Sanushka Naidoo: Programme Leader, Forest Molecular Genetics – Eucalyptus and Pine Pathogen Interactions (EPPI) – Forestry and Agriculture Biotechnology Institute (FABI).
- Dr Yolandi Ernst: Senior Lecturer, Global Change Institute.
- Dr Noxolo Ndlovu: NCT Forestry, Forestry Research Scientist.
- Jacqui Meyer: Co-ordinator, Timber Industry Pesticide Working Group.

Thought leadership summaries

Ilaria Germishuizen: Research is future-proofing the forestry sector

Scientific research conducted by the ICFR underpins the long-term sustainability and competitiveness of South Africa's plantation forestry sector. Through applied, collaborative

research spanning tree improvement, forest protection, soil and site resilience and advanced spatial technologies, ICFR equips the sector with evidence-based solutions to manage finite land and water resources, adapt to climate change and mitigate growing pest and disease risk. This work ensures that productivity gains are sustained across multiple planting rotations while safeguarding ecosystem function, supporting credible carbon reporting and strengthening responsible forest management. By simplifying science into practical decision-making, ICFR not only future-proofs the forestry value chain but also contributes to national economic growth, rural livelihoods and South Africa's climate resilience.



Sanushka Naidoo: Building resilient forests

Molecular genetics and genomics research allow forestry companies to respond proactively to climate change and growing resource constraints. Through advanced genetics and genomic tools, researchers are identifying trees with superior resilience to drought, heat, pests and diseases, enabling precision breeding and smarter deployment of planting material across South Africa's limited plantation landscape. This approach accelerates breeding cycles, reduces operational risk and improves long-term productivity while strengthening ecosystem services such as carbon sequestration. By integrating cutting-edge molecular research with industry partnerships, this work ensures that future forests are not only more productive and

predictable but also better adapted to a changing climate, supporting sustainable economic growth, rural livelihoods, and national resilience.



Naidoo Forest Molecular Genetics

Yolandi Ernst: Climate science central to forestry's future

Predictive, finer-scale climate modelling is essential for long-term forestry planning. Forestry's future depends on forward-looking climate science: historical weather data remains valuable, but it is no longer sufficient on its own as a reliable guide in a world of shifting rainfall patterns, rising heat extremes, and highly localised risks. Turning this science into real-world impact requires sustained partnerships between research institutions, the industry and public bodies, so that complex climate data is translated into practical, decision-ready insights embedded in strategy, operations and regulation.



Ernst Global Change Institute

The benefits reach far beyond improved yields; climate-informed forestry underpins jobs, strengthens rural economies, stabilises supply chains and supports national development and climate-resilience strategies, ensuring that

forests continue to sustain both people and landscapes in a rapidly changing world.

Noxolo Ndlovu: Forestry grounded in evidence-based science:

Using her own inspiring journey from a 15-year-old unsure of her future to achieving a PhD in Forestry and becoming a researcher at NCT Forestry, Noxolo illustrates how embracing STEM subjects in high school opened unexpected and meaningful career opportunities in forestry science. Her story highlights how forestry is grounded in evidence-based science, contributes to climate mitigation, supports rural communities and drives sustainable land management. It underscores the importance of encouraging young people, especially girls, to pursue STEM careers that combine scientific curiosity with real-world impact



Jacqui Meyer: Pesticide research and a safer world

Science-led pesticide research is strengthening the forestry sector's social licence to operate while safeguarding human health, ecosystems and market access. Through coordinated research and stewardship led by TIPWG, the sector is moving beyond efficiency-driven decision-making to a transparent, cradle-to-grave approach that prioritises worker safety, community wellbeing and environmental protection.



By generating credible, independent data and translating complex science into practical standards, training, and operational guidance, this research enables forestry to meet evolving regulatory and public expectations, reduce reputational risk, and adopt safer, lower-hazard alternatives. In doing so, it supports responsible production, protects biodiversity and water resources and ensures South African forestry remains competitive and trusted in global markets.

STEM and the social side of science

"Forestry research is a space where women can, and increasingly do, make a meaningful difference," says Professor Germishuizen. "It is interdisciplinary, applied and closely connected to society's future needs. For young women considering STEM pathways, it offers the opportunity to combine scientific excellence with tangible environmental and economic outcomes."

FSA has embarked on a month-long social media campaign running from 11 February to 11 March, during which women share what they do, why they chose a STEM career, and offer words of encouragement to young people, particularly girls, who may be considering similar paths.

"For young women considering a STEM career, the sector offers far more pathways

than many expect," says Meyer. "It is diverse, impactful and globally connected. Forestry creates local benefits while contributing to global sustainability goals."

At the heart of both campaigns is a commitment to nurturing the next generation of scientists. "The future of forests and the communities that rely on them will be shaped by our willingness to integrate scientific insights with purpose, deliberate inclusiveness and shared responsibility," says Professor Naidoo, emphasising the importance of visibility, mentorship and confidence-building.

"It is important that we encourage girls to engage with STEM, as this field will open tremendous opportunities. We need to help them overcome a lack of confidence in STEM subjects like mathematics to unlock the wide array of STEM careers waiting for them. Initiatives like this one, that show relatable faces succeeding in STEM, will help achieve this."

Dr Ndlovu appeals to young women and girls: "The world needs your curiosity, questions and perspectives. STEM careers are not reserved for the select few; they are built by ordinary people who are willing to learn, persist and believe that they belong!"

<https://www.forestrysouthafrica.co.za>



Sanushka Naidoo and her team of investigators strive to ensure that future forests are more productive, more predictable and better adapted to the changing climate.



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