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COLLOQUIUM

Niche Shift: The Story Behind Modern Human Dominance of Planet Earth

Prof Guy Midgley (Stellenbosch University)

DATE: Monday, 17 November 2025 | 16h00–17h00 SAST

VENUES:

- **Stellenbosch University:** Neelsie Cinema
- **North-West University:** Seminar Room K310, Physics Building G5
- **University of the Witwatersrand:** Room P215, 2nd Floor, Physics Building
- **Online**

--- A recording of the talk will be published on the NITheCS YouTube channel afterwards ---

ABSTRACT

Anatomically modern humans have existed on planet Earth for 300 000 years or more, but only rose to dominance in the past few thousand years. Why? Why is there such a time-lag between the episodic colonisation of the planet by *Homo sapiens* from our ancestral African home continent and the pivotal emergence of late Neolithic societies that mark the dawn of what has become a human dominated planet? I propose that this cataclysmic development must have been underpinned by a significant reduction in environmental constraints on Neolithic human population sizes, and that the obvious and overlooked trigger is the combined effect of natural warming and moistening of the global climate, accompanied by rising atmospheric CO₂ that marked the termination of the last glacial period, from 18 000 years ago. This transition created the environmental conditions necessary for late Neolithic societies to take advantage of far higher productivity of wild vegetation and animals, triggering a fundamental ecological niche shift for our species from transient hunter-gathering to sedentary farming. Understanding this fundamental and recent niche shift seems vital for understanding the ecological basis of the resilience of "modern" human society in a changing climate. I will distil some key lessons from this deep time perspective that can add to our understanding of some of the concepts we have developed to assess our fragility and resilience, such as planetary boundary type risks.

BIOGRAPHY

Prof Guy F. Midgley is a leading climate scientist whose career has focused on arid ecosystems and climate change, particularly in southern Africa. Beginning at the Botanical Research Institute (now SANBI) in 1983, he became a professor at Stellenbosch University (SU) in 2014, where he now directs the School for Climate Studies and serves as the Director of the Centre for Invasion Biology. He holds an NRF A-rating in both Plant and Earth Sciences and has received major honours, including the Marloth Medal and a Humboldt Senior Research Award.

Prof Midgley has contributed extensively to global climate policy, serving as a coordinating lead author for multiple IPCC assessments (2000–2021) and co-chairing the CBD Climate Change and Biodiversity Expert Report. In South Africa, he has been instrumental in shaping national climate science and policy, leading initiatives that significantly expanded funding for global change research.



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