

NEWS RELEASE

Global tree die-offs demand urgent action, says UP scientist



Prof Bernard Slippers has been awarded the prestigious Humboldt Research Award for his groundbreaking work on global tree health and forest resilience.

PRETORIA - A coordinated global research effort on multiple levels is needed to halt the die-off of trees around the world, says the [University of Pretoria's](#) (UP) [Professor Bernard Slippers](#), recipient of a prestigious German research award.

From the street and garden trees in Pretoria to the pines of China and North America and the forests of Scandinavia, trees are under threat from climate change and pathogen and pest invasions linked to globalisation.

“Addressing the pressure on forests is urgent and critical. Climate change is having a dramatic effect on forests, which are under stress from heat, drought and disease, resulting in mass die-offs,” says Prof Slippers, Director of UP’s [Forestry and Agricultural Biotechnology Institute](#) (FABI), who recently received a [Humboldt Research Award](#) from the [Alexander von Humboldt Foundation](#).

All healthy plants carry microbes in their tissues, many of which are latent pathogens – organisms that can cause

disease – which switch to a pathogenic phase when the host is under stress and its immune responses are suppressed. He says climate change is altering environmental conditions faster than forests can adapt, fuelling stress levels that trigger disease.

An aggravating factor is the spread of pests and pathogens around the world through global trade in plant material – especially plants for planting. “We have seen new pathogens coming into South Africa as a result of international trade, which has increased significantly in the past 30 to 40 years. As more plant material is moved around, fungi and pests are moved around as well.”

New pests are wreaking havoc in South Africa

New pests that have invaded South Africa include several different species of fungi and insects, including the polyphagous shot hole borer, an invasive, fungus-carrying beetle that Prof Slippers says is implicated in the destruction of native and non-indigenous trees such as oaks.

“The beetle is now in the Cape,” he says. “The big oaks in George and Knysna are largely gone and many of the trees in the oak-lined avenues of wine farms are dead. If it continues to progress, Stellenbosch might also lose many, if not all of its oak trees.”

Prof Slippers makes it clear that tree diseases and die-offs are a global phenomenon and not a single-country problem. There are also no single-scale and single-discipline solutions. “What is needed are collaborations that connect sets of expertise typically not found in one place and that approach the problem from different angles.”

He has been involved in international collaborations in over 40 countries, and since 2023 has been instrumental in building a network of researchers from 12 different university and non-university groups in South Africa and Germany that are investigating the role of mycobiomes (communities of fungi) on plant and tree health.

It was one of the researchers in this network, [Prof Andre Fleißner](#) of the Technical University of Braunschweig in Germany, who nominated Prof Slippers for the Humboldt Research Award.

The right person at the right time

In his nomination, Prof Fleißner wrote that Prof Slippers is a “pre-eminent global authority in forest pathology” and is “exactly the right person at the right time to lead major international research initiatives” in the field.

He wrote that the work of Prof Slippers, who has published more than 340 papers and been cited over 20 000 times, has global reach and led to the identification of several new plant pathogens and pest species. “Moreover, his endeavours have fostered the development of chemical, digital and biological tools for precision pest management on a global scale.”

The Humboldt Research Award, which runs over three years, is conferred on internationally recognised researchers in recognition of their entire academic record to date. Award winners are invited to carry out research projects of their choice in cooperation with specialist colleagues in Germany.

Asked what projects he intends to work on, Prof Slippers says he will continue to help build the South African-German network established in 2023 to investigate invasive fungal and oomycete pathogens – microorganisms similar to fungi that include water moulds – driven by globalisation and climate shifts.

“We have a unique set of skills and expertise across the network that we hope to use to build a more complete picture of how fungi are causing diseases in trees,” he says. “The role of fungal communities in forests is still an underexplored and overlooked aspect of forest adaptation and resilience.”

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ABOUT THE UNIVERSITY OF PRETORIA

The University of Pretoria (UP) is one of the largest contact and residential universities in South Africa. Spread over seven campuses, it has nine faculties and a business school, the [Gordon Institute of Business Science](#) (GIBS). It is the only university in the country with a [Faculty of Veterinary Science](#), which is ranked the best in Africa. UP has 120 academic departments and 92 centres and institutes, accommodating more than 56 000 students and offering about 1 100 study programmes. It has the most academic staff with PhDs (70%), NRF-rated researchers (613).

The [2025 Times Higher Education \(THE\) Impact Rankings](#) placed UP 7th globally for Sustainable Development Goal (SDG) 17: Partnerships for the Goals, recognising the University's leadership in building impactful global collaborations. UP also ranked 41st in the world and 1st in Africa and South Africa for SDG 16: Peace, Justice and Strong Institutions, and maintained its position as the second-highest ranked university overall in both Africa and South Africa.

The 2025 Times Higher Education subject rankings placed UP first in South Africa in the fields of [Accounting](#) and [Finance](#); [Architecture](#); [Electrical and Electronic Engineering](#); Law; Sport Science; and Veterinary Science. UP's Faculty of Law has been ranked as the top law school in Africa for a remarkable eighth consecutive year.

In the [2025 QS World University Subject Rankings](#), UP is ranked in the top 100 in the world in Mineral & Mining Engineering (41), Veterinary Science (51–60), and Development Studies (51–100). Six UP subjects are ranked No. 1 in South Africa: Mechanical Engineering, Veterinary Science, Mathematics, Accounting & Finance, Business & Management Studies, and Economics & Econometrics.

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