Forestry and Agricultural Biotechnology Institute
"Future Forests and Food"

TREE PROTECTION NEWS

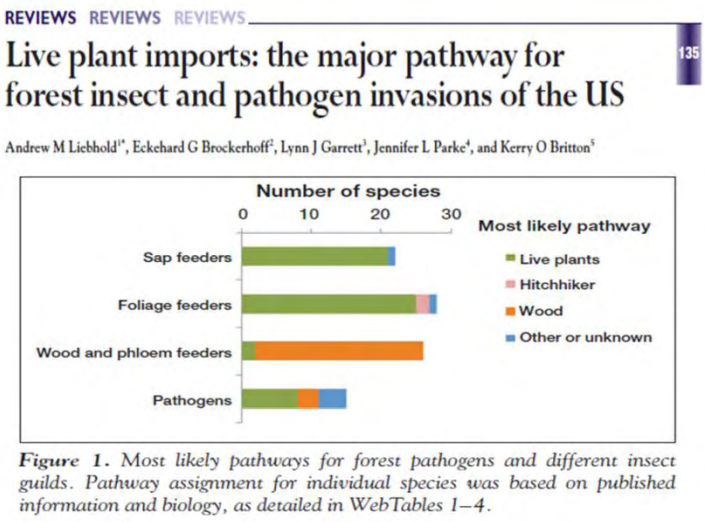
Newsletter of Tree Protection Co-operative Programme (TPCP) and the DST/NRF Centre of Excellence in Tree Health Biotechnology (CTHB)

Volume 25

June 2013

From the Director's desk

The annual meeting of the Tree Protection Co-operative Programme (TPCP) has just passed - remarkably our 24th Annual Meeting. As I said in my opening remarks, we are now only a year short of this remarkable programme reaching its 25th Anniversary. I know of a few co-operative forestry research ventures in the United States that have had an equally long (or in some cases, such as CAMCORE, longer) history, but there is no question that the TPCP is one of the most vital and long-existing programmes of its kind in the world. It has been said many times that the TPCP has the single largest concentration of scientists working in the field of tree health anywhere in the world. But more importantly, we can now look back in a meaningful way to define some of the historic milestones and accomplishments of the programme.



REVIEWS REVIEWS REVIEWS

Live plant imports: the major pathway for forest insect and pathogen invasions of the US

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Andrew M Liebhold[1*], Eckehard G Brockerhoff[2], Lynn J Garrett[3], Jennifer L Parke[4], and Kerry O Britton[5]

Figure 1. Most likely pathways for forest pathogens and different insect guilds. Pathway assignment for individual species was based on published information and biology, as detailed in WebTables 1–4.

While actively focusing on specific goals, one easily forgets what has already been accomplished. In this respect, to take an occasional moment to look back (much like the mountain climbing analogy) and note progress is encouraging, and it provides the motivation that drives informed planning for the future. We easily forget that the South African Forestry Industry relies heavily on tools that have been developed via various research projects led by the TPCP; and this will clearly be true for the future. An important lesson, in my opinion, is that a programme such as this must focus not only on immediate issues but also on the mid and longer term issues. And being based within a University environment, by definition one that focuses on the future, makes this element of the TPCP's goals achievable.

Contents

Layout & Design: Tania Weller-Stuart and Jolanda Roux

Contributions to this newsletter: Brett Hurley, Darryl Herron, Jolanda Roux, Arista Fourie, Mike Wingfield

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Damage to a Eucalypt caused by *Leptocybe invasa*

We are now rapidly moving towards the anniversary of the first release of the *Eucalyptus* gall wasp parasitoid, *Selitrichoides neseri*. As I prepared my TPCP opening presentation, I had the opportunity to see many photographs of that historic moment. And it certainly was an important point in the history of tree health in South Africa. We must now hope for outstanding biological control. The early indications are good and I hope that in years to come we might have a monument to the role that this little insect has played in South African forestry, in the same way that there is a monument celebrating the release of a biological control agent for the Eucalyptus snout beetle, *Gonipterus scutellatus*. If you were at the TPCP meetings, you would have heard further evidence that this species of *Gonipterus* is not present in South Africa. The implications of this mistaken identity could be numerous, but that is a story for later.

***Leptocybe invasa*, the blue gum chalcid**

The single clone die-off in Zululand remains a great mystery. Some of the most severely affected areas have now been visited by more than a dozen of the world's best known pathologists and entomologists. Yet we still have no clear view of the cause of this problem. All the evidence available to us suggests that this is not a problem caused by a single organism - pathogen or insect. I have recently raised the question as to whether a clone (clones), can be propagated *ad infinitum*, or whether they (some) might have a defined life span. Could a build-up of otherwise non-pathogenic endophytes in a clone eventually result in its inability to continue growing? These and other questions will dominate TPCP studies concerning this problem for many months to come.

A question that was asked of me during the TPCP meeting was whether we might be able to predict which new pests or pathogens of *Eucalyptus* or pine might be the next to arrive in South Africa. My response (probably a little long!) was that it is almost impossible to make such predictions, although clearly those pests and pathogens close by and already "on the move" should be of great concern. What we can do is to prepare a list of those pests and pathogens of trees being propagated in South Africa and that we know to be moving. This will at least raise awareness of some of the threats and it should also promote awareness of the importance of insect pests and pathogens in forestry.

Foresters and field researchers represent the most valuable resource that we have in terms of pest and disease monitoring. The 800 or so person days that the TPCP team spends in South African plantations makes a significant contribution here. Likewise, the samples collected by foresters and sent to the TPCP/CTHB diagnostic clinic add another important level of surveillance. While this monitoring system is not perfect, it has been effective in recording most of the recent pest and pathogen outbreaks relatively early in the cycle of establishment. I will not provide examples here but suffice to say that there is an impressive team effort in place to monitor the health of South African forestry plantations. And here I emphasise the important role that foresters and forest managers play in our efforts to "KEEP TREES HEALTHY".

Kind regards,
Mike Wingfield

TPCP and CTHB annual stakeholders' meeting 2014 – dates

The dates for the 2014 annual TPCP and CTHB stakeholders meetings have been set. If you are interested in joining us for these meetings, please contact your TPCP/CTHB board member or the Director: FABI, for more information.
2014 will be an extra special meeting since it is also the ***25th anniversary*** of the Tree Protection Co-operative Programme (TPCP)!

12 May 2014 – CTHB Research Member Team Building and Information Day
13,14 May – TPCP/CTHB Stakeholder meetings and research presentations by researchers and students
13 May – Annual "hands-free beer slug" challenge and Tuscan BBQ dinner
14 May – TPCP Board meeting

Prof Brenda Wingfield elected to ASSAf Council

From Tukkievaria 2013

The Academy of Science of South Africa (ASSAf) has inaugurated its new President and new Council of the Academy for the 2012 to 2016 cycle. The Academy of Science of South Africa (ASSAf) is the official national academy of science and represents the country in the international community of science academies. ASSAf is governed by a Council comprising 13 members, of whom 12 are elected from the membership and one is appointed by the Minister as representative of the National Advisory Council on Innovation (NACI). The Academy has five office-bearers: the President, two Vice-Presidents, General-Secretary and Treasurer.

Prof Brenda Wingfield, Deputy Dean in the Faculty of Natural and Agricultural Sciences, current Chairperson of the National Science and Technology Forum (NSTF) is a council member. Prof Zeblon Vilakazi, an Extraordinary Professor at the University of Pretoria, is Director of iThemba LABS and Group Executive for Research and Development at the South African Nuclear Energy Corporation. He is also a member of the Board of Nuclear Industries Association of South Africa.

TPCP and CTHB diagnostic clinic 2013

It is almost the middle of the year and one can already feel the cold sweeping over Pretoria. It is incredible how time flies and this is particularly true for the members of the Diagnostic Clinic. We have processed almost half of the samples we receive annually and there is still much to do and much to look forward to. We are also back from our annual Diagnostic Clinic training trip and fresh from another successful annual TPCP meeting. It was good to see many of you there and for those of you who weren't there, we look forward to seeing you next year.

The Diagnostic Clinic team has changed slightly since 2012. Bernice Porter and Fahimeh Jami have left the Diagnostic Clinic and I would like to thank Fahimeh Jami for all her help over the last year. A big thank you to Bernice Porter for all her years of service to the Diagnostic Clinic. We all appreciate the work she did. The Diagnostic Clinic is a great place for students to work as they gain valuable experience and we try to bring in new students every year. This year we are joined by a new member, Khumbizile Bophela, a Masters student in FABI. The Diagnostic Clinic team for 2013 is DongHyeon Lee, Mkhululi Maphosa, Katie Termer and Khumbuzile Bophela. The team is led by Darryl Herron.

The Diagnostic Clinic Team members for 2013 (*from left to right*: DongHyeon, Katie, Mkhululi, Khumbuzile and Darryl)

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DST/NRF Centres of Excellence Directors' Forum 2012

Prepared from documents supplied by the NRF

The National Research Foundation (NRF) in conjunction with the Department of Science and Technology (DST) and the Academy of Science of South Africa (ASSAf) hosted the annual Centres of Excellence (CoE) Symposium on Tuesday 13 November 2012 at the Sanlam Conference Centre, University of Pretoria. The theme of the 2012 forum was "CoEs Closing the Gap: Research and Impact". The aim of the event was to provide a platform for the CoEs to showcase their work, share ideas, experiences and raise pertinent issues. The event also offered an opportunity to reflect on impact emanating from research conducted in the CoEs. Furthermore, ASSAf could reflect on how best to collaborate and utilize research for evidence-based policy development. The ASSAf Advisory Panel engaged with presenters during discussions and, at a later stage, was tasked with providing a written report on the best ways for and how scientists can and are contributing to evidence-based practices.

Each CoE was responsible for setting up an exhibition stand, which could be viewed all day by delegates, promoting the research and achievements of the CoE. The CTHB exhibit was eye catching and drew much attention. We want to thank Osmond Mlonyeni, Kershney Naidoo and Mmatshepho Phasha for their hard work and enthusiasm in preparing, setting up and manning the exhibit.

At 09:00 the new NRF CoE Website was launched and all attendees had the opportunity to interact with the Director General of the DST, Dr Phil Mjwara. Proceedings officially started at 09:45 when Prof Cheryl de la Rey, Rector of the University of Pretoria, welcomed everyone to the Annual Forum. Dr Mjwara gave the keynote address and Prof Dave Woods of ASSAf mentioned ASSAf's role at the Forum. Each of the nine CoE directors together with one student from each CoE had half an hour to showcase the achievements of their CoE and to share experiences of the CoE influence. After a discussion on the way forward for CoEs post 2013, Dr Andrew Kaniki of the NRF concluded the meeting.

After the meeting the CoE directors, NRF top Executive represented by Dr Kaniki and Dr Nthabiseng Taole and DST represented by Mr Bheki Hadebe continued discussions relating to the CoEs and the way forward for the next five year period. This was done during a closed management meeting at FABI. Finally, all enjoyed cheese and wine refreshments in the FABI courtyard together with core team members of the CTHB research team as well at the CTHB supported students at FABI.

Top left: From left to right: Kershney Naidoo, Brenda Wingfield, Mmatshepho Phasha, Osmond Mlonyeni and Mike Edwards at the CTHB exhibit. Top right: Cheryl de la Rey (Rector, UP) with Phil Mjwara (DG, DST). Bottom left: Frank Mazibuko (NRF), Emma Steenkamp, Tuan Duong and Ayanda Zondi (NRF) at FABI function. Bottom right: Bheki Hadebe (DST), his daughter, and Mike Wingfield, also at the FABI function

FABI Director elected as new IUFRO President

Prof Mike Wingfield, the Director of the Forestry and Agricultural Biotechnology Institute (FABI) at the University of Pretoria was elected this past week to serve as the next president of the International Union of Forestry Research Organizations (IUFRO). Mike is the first ever African to be elected to this prestigious position, which has a five year term running from October 2014 to 2019.

IUFRO is “the global network for forestry research” and one of the most influential organisations dealing with forestry and linking forest scientists throughout the world. It is “a non-profit, non-governmental international network, which promotes global cooperation in forest-related research and enhances the understanding of the ecological, economic and social aspects of forests and trees”. IUFRO unites more than 15 000 forestry scientists from more than 110 countries globally. The organization was established in 1892 and is a member of ICSU (International Council for Science).

Prof Wingfield has been an active member of IUFRO for more than 30 years. He has served in many positions in the organisation including being the Co-ordinator of Division 7 (Forest Health). For the past four years he has been the Vice President responsible for the nine Divisions of IUFRO. Mike has worked in forestry, particularly forest protection since his student years and has a passion for protecting these crucially important ecosystems. His international scientific reputation, backed up by an extensive network of forest scientists in IUFRO, will be the start of a new and exciting era, not only for IUFRO, but especially for the African continent.

Forest and Ornamental Plant Phytosanitary Working Group

Prepared by Brett Hurley

Pests and diseases remain one of the most serious threats to the health of native and non-native trees in South Africa and worldwide. In an attempt to support and coordinate efforts to manage these threats the Department of Agriculture, Forestry and Fisheries (DAFF) has recently established a Forest and Ornamental Plant Phytosanitary Working Group (FOP PWG). The formation of this working group was in response to South Africa's participation in the International Plant Protection Convention (IPPC) and the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures (WTO-SPS), as well as the development of an integrated national forest protection strategy for South Africa.

The FOP PWG provides a technical forum to discuss issues relevant to tree health, including strategies to prevent the introduction and spread of pests and diseases, as well as procedures and regulations around the introduction of biological control agents to manage already present pests. The working group comprises members from various stakeholders, including two academic staff, namely Prof Jolanda Roux and Dr Brett Hurley, who are linked to the Centre of Excellence in Tree Health Biotechnology (CTHB) and the Tree Protection Cooperative Programme (TPCP) of the University of Pretoria. It is hoped that the formation of this working group will contribute to the protection of South Africa's tree resources, including both native forests and non-native plantations.

SASPP Conference January 2013

Prepared by Arista Fourie

The South African Society for Plant Pathology held their 48th conference at the scenic ATKV, Klein Kariba resort in Bela-Bela from 20-24 January 2013. This meeting attracted a broad range of people involved in plant pathology, specialising in disease management, pathogen detection and characterisation as well as quarantine regulations. The conference was attended by about 160 members representing regions such as Pretoria, Johannesburg, Potchefstroom, Nelspruit and even as far as Stellenbosch. The three-day program included 65 speakers and 59 poster presentations. The aim of the conference was to bring plant pathologists throughout the country together and promote networking opportunities for researchers with a common interest. This conference provided a broad overview of the challenges faced in industry, the great variety of plant pathogens that threaten crops and trees in our country and what is currently being done to keep this threat under control.

Invited speakers and organisers

Klein Kariba venue

The four guest speakers invited included Drs Rikus Kloppers, Holger Deising, Dave Hodson and Prof Pedro Crous. Dr Klopper from Pannar seed gave an excellent overview of the current challenges faced by the crop seed industry in breeding for resistance. Dr Holger Deising, from Germany, presented a talk on the importance of functional genomics and the strategies followed for identification of pathogenicity factors involved in plant-pathogen interactions. Dr Dave Hodson (International Maize and Wheat Improvement Centre, ILRI Shola Campus, Ethiopia) discussed the progress that has been made in tracking different strains of rust pathogens in Africa and highlighted the importance of this endeavour. Lastly, Prof Pedro Crous from the CBS (Centraalbureau voor Schimmelcultures, Netherlands) gave a thought provoking talk on the recent decision to use a single name for fungal species instead of the current teleomorph–anamorph names, the importance of accurate communication on this matter and the challenges involved for researchers in changing to one name for a species.

The conference also provided sufficient opportunities for outdoor activity and socialising. Two field trips were organised. One focused on the identification of granadilla diseases while the other focused on potato diseases. In addition to these activities our knowledge on plant pathogens was challenged with a quiz evening that focused on the identification of pathogens based on host symptoms or morphology. The conference ended with a gala dinner on the Wednesday evening at which Prof Mike Wingfield paid tribute to the late Prof Wally Marasas, who has had a major influence on the field of plant pathology and specifically the SASPP. Awards were presented to the best speakers and poster presenters. Four FABIans were amongst the awardees. The best student presentation was awarded to Darryl Herron; the best molecular-based talk by a student to Anandi Reitmann, the Van der Plank Award to Prof Bernard Slippers and Johan van der Linde received the John and Petakin Award.

Congratulations to TPCP/CTHB students and staff

Each year FABIans excel in their pursuit of excellence and in finding ways of extending the boundaries. Early 2013 is no exception as we congratulate many FABIans on awards received.

GRADUATIONS

Eleven CTHB/TPCP supported honours students graduated during the April 2013 autumn graduation of the University of Pretoria. They were: **Robert Backer, Kay Bophela, Caitlin Botha, Roux-Le Botha, Petrus Erasmus, Malegola Mohlala, Israel Radebe, Danielle Roodt, Kerryn-Leigh Scheepers, Vimbai Siziba, Stephanie van Wyk.**

MSc degrees:

Zander Human

The diversity and ecology of actinomycetes associated with environments dominated by ophiostomatoid fungi.

Jan Nagel (*cum laude*)

Phytophthora species in South Africa.

Phathie Sibanda (*cum laude*)

The role of quorum sensing in the virulence of *Pantoea ananatis.*

Ph.D degrees:

Matsepo Taole

Phylogenetic reassessment and population biology of *Eucalyptus* pathogen *Teratosphaeria suttonii* from diseased *Eucalyptus* leaves.

AWARDS

A large group of TPCP/CTHB students attended the Southern African Society of Plant Pathology (SASPP) meeting in Bela Bela in January 2013. The performance of TPCP/CTHB students – in every way – was spectacular. **Darryl Herron** (right) received the best speaker award and **Johan van der Linde** (left) was awarded the John and Petakin Mildenhall award for an outstanding PhD student.

Prof Teresa Coutinho (left) received an Exceptional Achievers Award from the University of Pretoria.

Prof Jolanda Roux (right) is congratulated on receiving an NRF B2 rating – this puts her amongst the top tier of academics in South Africa and represents tremendous and well deserved recognition from her peers globally.

Prof Bernard Slippers (left) received the Van der Plank award of the Southern African Society of Plant Pathology (SASPP). This is the Society's most prestigious award to an early career scientist. Bernard also received an Outstanding young Researcher award from the University of Pretoria.
Prof Brenda Wingfield (right) was recently appointed as the secretary general of the International Society of Plant Pathology (ISPP), for the period 2013-2018.

Prof Mike Wingfield was awarded two Honorary Doctorates - the first from the University of British Colombia, Vancouver Campus on 21 November 2012 and the second from North Carolina State University in May 2013.

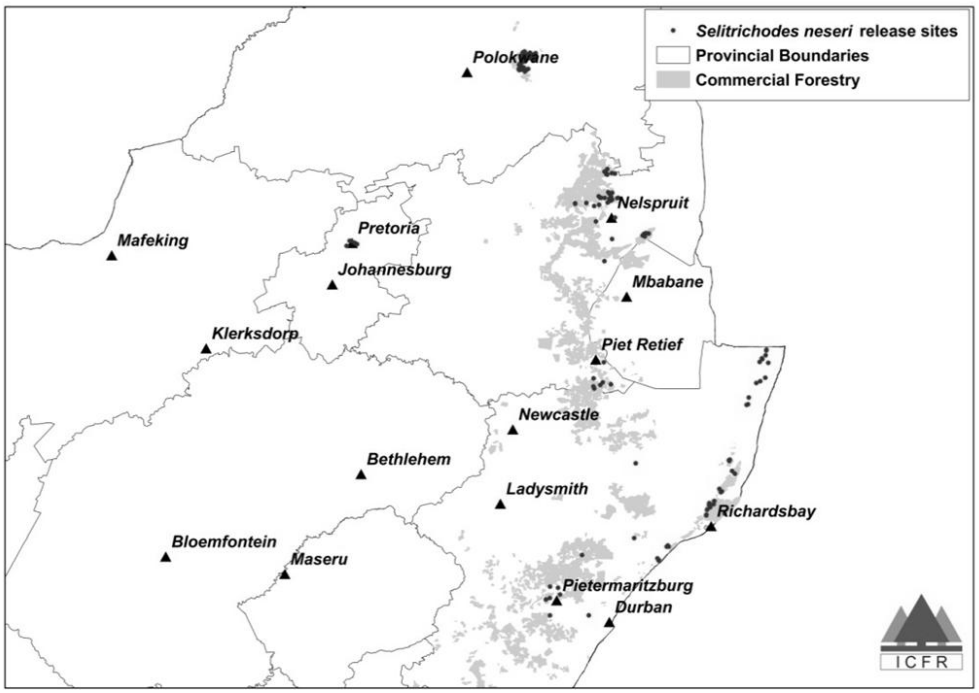
Biological control of *Eucalyptus* pests

The rate of introduction of *Eucalyptus* pests in South Africa is increasing, with more than half of the major pests detected within the last 10 years. One of the approaches used, that forms part of an integrated pest management strategy, is classical biological control. Classical biological control can be defined as "the intentional introduction of an exotic, usually co-evolved, biological control agent for permanent establishment and long-term pest control" (Eilenberg et al. 2001; Biocontrol 46:387-400). This management approach has been used for many of the current insect pests of *Eucalyptus* in South Africa, including *Gonipterus scutellatus*, *Phorocantha* spp., and *Trachymela tincticollis*. Reasons for the widespread use of biological control for *Eucalyptus* pests in South Africa, and worldwide, include its reduced costs, long-term benefits and reduced environmental impact compared to most other management options. In plantation forestry it is also suitable because the long rotations allow populations of biological control agents to establish and spread.

Recently, a new biological control agent, *Selitrichodes neseri*, was released in South Africa for the control of the Blue Gum Chalcid, *Leptocybe invasa*. The first releases of *S. neseri* were in July 2012 and releases continue to date. The current procedure is to release 20 *S. neseri* females at each site with the objective of spreading *S. neseri* as widely as possible across sites highly infested with *L. invasa*. Once established, *S. neseri* should then spread to new sites and begin to regulate *L. invasa* populations without further intervention (releases). The success of establishment from the releases and the rate of spread of *S. neseri* is currently unknown, but is being investigated as part of the PhD project of Mr Kwabena Baffoe. Approximately 5000 *S. neseri* females have been released in South Africa at various sites to date (see map). Efforts to introduce biological control agents for another serious pest of *Eucalyptus*, namely the Bronze Bug, *Thaumastocoris peregrinus*, is also underway. The mymarid parasitic wasp, *Cleruchoides noackae*, was discovered parasitizing *T. peregrinus* in Australia. Extensive studies on the biology and host specificity of *C. noackae* at the FABI Biocontrol Centre have shown that this wasp is suitable for release as a biological control agent. An application requesting its release in South Africa has been submitted to the Department of Agriculture, Forestry and Fisheries (DAFF).

In addition to the work on *C. noackae*, efforts are being made to import *Psyllaephagus bliteus*, a biological control agent of the newly discovered (2012) red gum lerp psyllid, *Glycaspis brimblecombei*. Efforts are also underway to introduce two new species of *Anaphes* for the control of the *Eucalyptus* Snout Beetle, *Gonipterus* species complex. The intention to test different *Anaphes* species follows the recent discovery of

different *Gonipterus* species present in South Africa, possibly with different responses to the current biological control agent, *Anaphes nitens*.



Biological control offers exciting opportunities to contribute to the management of *Eucalyptus* pests in South Africa. However, there are various challenges to the success of biological control, including the presence of cryptic pest species, the influence of different environments and limited resources. To meet these challenges, in-depth research is required to investigate factors influencing the success of biocontrol efforts, and issues of cryptic pests and biocontrol species need to be addressed with the new research tools available. In addition, intra-Africa and international collaborations are essential to offset costs and form combined research initiatives for common objectives.

Who's who in the TPCP/CTHB?

Sarai Olivier-Espejel
PhD student
Nationality: Mexican

Research/Expertise: *Acacia* is the second largest genus within the subfamily Mimosidae, with most indigenous species found in Australia, and others found in Africa, Asia and America. *Acacia mearnsii,* commonly known as the black wattle, is a commercially important species in South Africa; however, it is also highly invasive. The aim of my research is to build an understanding of the community of insect herbivores feeding on this alien species as well as on closely related native acacias. This work also attempts to examine what ecological and/or evolutionary factors determine the insect communities on these trees. Research takes place in three regions: Kwazulu-Natal, Mpumalanga and Gauteng.

Hobbies/interest: My interests include photography, travelling and dancing. I also enjoy playing tennis.

Felix F. Fru
PhD Student
Nationality: Cameroonian

Research / Expertise: I am a member of the *Fusarium circinatum* team of students and researchers working on the genetics, biology and spread of *F. circinatum* in South Africa. When *F. circinatum* was first identified in South Africa, it was thought to be a nursery and establishment problem. However, in the past 15 years it has been found in commercial pine plantations. This is posing a serious problem to the forestry industry in South Africa. My research objective is to look at the ecology, biology and diversity of *F. circinatum* in commercial pine plantations in South Africa. As somebody interested in quarantine, previous research was done on *Ceratocystis* spp. where I was able to show that *Ceratocystis fagacearum*, a pathogen native to North America, was also present in the native forest of Ghana.

Hobbies / Interests: I enjoy cooking, listening to the radio, reading, soccer and watching documentaries.

Extension and field research - 2012

Members of the TPCP/CTHB diagnostic clinic and foresters of SQF and Mondi investigating the death of eucalypt trees in the Zululand region

Field extension and monitoring of pest and disease problems in plantations and forests remains a critically important component of the activities of the CTHB and TPCP programmes and serves a number of purposes. These include surveying and monitoring disease and pest problems, student training and the increase of awareness amongst the general public, environmental officers, conservation staff, foresters, farmers and others regarding the importance and impact of diseases and pests of trees. This is essential to increase the number of people able to recognise and report new tree health problems. In a number of cases disease problems identified during extension visits have become the bases of masters and PhD projects.

Between 2009-2012, the number of field trips conducted in South Africa by CTHB/TPCP staff and students increased from 45 to 71, with the number of person days spent in the field peaking in 2012 at 899 days. This represents the presence of members of the TPCP/CTHB research teams in the field virtually every week of the year, but as it is sufficiently important to undertake field work, this is encouraged rather than discouraged. Most years since 2009 the teams have spent more than 500 person days in the field, in South Africa. A number of field trips are, however, also conducted to neighbouring and other African countries to survey tree health and build collaborations with various institutes and companies in these countries. These trips also serve to obtain early warning of potential future tree health problems in South Africa.

During field trips, presentations and field days are often presented by CTHB/TPCP staff and students, including lectures on tree health to forestry students at the Nelson Mandela Metropolitan University's Saasveld campus and the University of Stellenbosch. Field day presentations are important vehicles by which to update foresters and farmers on the latest research results and warn them about new pest and disease problems, while the lectures at sister universities serve to equip future foresters with at least a baseline knowledge of the pest and disease problems they may encounter. A focus during these lectures is the management of tree health problems, both from the perspective of a farmer/forester and that of a researcher or forestry scientist. The exposure of foresters to the threats, as well as management options, of pests and pathogens is of considerable importance to the TPCP and CTHB. For a number of years we have thus hosted forestry students from NMMU (Saasveld) at FABI to expose them to tree health issues and the challenges and opportunities of our research into finding sustainable management strategies to reduce the impacts of these problems.

Working in the rain!

Craig Ford (Sappi) explaining Sappi's Pine research programme to international visitors to the Shaw Research Centre.

Field trips are important training experiences for post-graduate students in the TPCP and CTHB programmes. All students in the programmes are strongly encouraged to participate in field trips, even if their research projects do not require field work and are laboratory based. We believe that this provides them with valuable insight into the real reasons for the existence of their projects and the questions they are trying to answer with their research. It also provides students and staff with valuable opportunities to engage with fellow researchers and stakeholders, honing their communication skills in preparation for the future. For a number of students field work is, however, the basis of their research and many spend weeks in the field conducting field based experiments, surveying and collecting data for their research projects.

Extension and field research trips have resulted in the identification of a number of previously unknown disease and pest problems of native and plantation trees in South Africa. Knowledge on the native fungal and insect biodiversity of South Africa has also been significantly increased in the process, attesting to the multiple impacts of research conducted by the TPCP and CTHB research groups. Several previously unknown fungal species,

Dr. Brett Hurley of the TPCP/CTHB being surrounded by curious NMMU-Saasveld forestry students during a forest protection practical session near George.

and even genera, were discovered during 2012 and earlier field visits. Some of these, such as *Immersiporthe knoxdavesiana*, the cause of a branch and stem canker disease of native *Rapanea melanophloeos* (Cape Beech) trees in the Western Cape Province, have been found to be important tree pathogens. The role of others, such as the numerous species of *Ceratocystis* and Botryosphaeriaceae discovered on native trees including *Acacia karoo* and others, are unclear. The same is true for the many *Ceratocystis* species obtained from *Eucalyptus* trees in South Africa.

Importantly, field trips are also used to introduce tree health specialists from abroad to South African stakeholders, allowing for the exchange of information on tree health. Sites visited in 2012 included a pitch canker outbreak in KZN, *Leptocybe invasa* outbreak sites in Mpumalanga and KZN and *Sirex noctilio* trial sites in Mpumalanga. As emphasized many times during meetings with stakeholders, a key advantage that membership to the TPCP brings, is the access to international tree health experts and scientists, and thus decades of experience and information.

After an interesting and fun day in the field, comes many hours of sample processing.

During 2013 the TPCP and CTHB research teams will continue to interact with our stakeholders as much as possible and in as many different ways as possible to bring information and tree health management strategies to you. We would like to thank all foresters, farmers, conservation staff, researchers, contractors and others for their support and assistance in 2012. We look forward to working with you in this year. Together we can keep trees healthy!

Awards keep coming for FABI Director

The past few months have seen Prof Mike Wingfield, the Director of the Forestry and Agricultural Biotechnology Institute (FABI) receiving a number of prestigous awards for his contribution to science and capacity building internationally. These included two honorary doctorates, one from the University of British Colombia and one from North Carolina State University, as well as a Kwame Nkruma Scientific Award from the African Union.

Prof Nabil A. Ibrahim and Prof Michael J. Wingfield, recipients of the AU Kwame Nkruma Scientific Awards

TPCP/CTHB team building 2013

Prepared by Brett Hurley

The TPCP/CTHB team for 2013

On 11 January 2013, just over 100 students and staff from the CTHB / TPCP group converged on Kwalata Game Ranch in Hammanskraal, Gauteng. The purpose of this large gathering of inquiring minds was the CTHB / TPCP Team Building event for 2013.

The day started with feedback on the previous day's strategy meeting from the staff that form the management team of the CTHB and TPCP, including some key issues such as bursaries, field trips and the importance of broadening your academic experience. This was followed by a break-away session where mixed groups of staff and students were asked to discuss issues they considered important in the CTHB / TPCP groups, and formulate a list divided into 'likes', 'dislikes', 'keep' and 'change'. The feedback was overwhelmingly positive, with many voices of appreciation for the academic support, facilities and social environment provided in these programmes. There were also some great recommendations for change from the groups, including practical suggestions to increase the experience of students in the laboratory and the field, and some broader issues such as student safety and parking.

After the constructive morning discussions, it was time for some light-hearted fun and team-building activities. This took place in the form of Mission Impossible! For this activity, teams were formed to compete against each other, and against the clock: to solve puzzles, find treasures and scavenge for diamonds. Planning, strategizing and communication were key, but of course the dominant element for the day was fun-filled team building and engagement. All of this, plus a very scrumptious braai, led to the end of a very busy, fun-filled day, and the return of just over 100 minds – tired from the day but excited and ready for the year ahead.

Members from the different teams searching for clues and treasures.

Welcome to the TPCP and CTHB research programmes

We would like to welcome the following new students/staff to the TPCP and CTHB programmes of FABI. We hope you will all be very happy with us!

Michel Tchotet Tchoumi joined the CTHB programme in May. He is from Cameroon and will be working on root and butt rot pathogens in the Garden Route National Park for his PhD degree.

Kulani Mashudu Nxumalo is from Limpopo and was awarded the Faculty of Science & Agriculture IDC (Industrial Development Corporations) Best Student Award in Microbiology in 2011. Her MSc focuses on the diversity of rhizobia associated with indigenous legumes.

Abate Birhan Addisie is from Ethiopia. He is doing his PhD in the molecular characterization and evaluation of entomopathogenic nematodes for the management of white grubs in South African plantations.

Rofhiwa Nesamari will be working on the pests and pathogens of cycad species in South Africa as part of her MSc research.

Vimbai Isabel Siziba is originally from Zimbabwe and will be looking at the taxonomy and population genetics of needle blight pathogens in pine for her MSc degree.

Mesfin Wondafrash Gossa is also joining us from Ethiopia. He has a background in Insect Sciences and Nematology and will be looking at the ecology, diversity and management of the Deodar Weevil, *Pissodes nemorensis* (Coleoptera: Curculionidae) for his PhD.

DISEASE ALERT

MYRTLE RUST NOW IN SOUTH AFRICA!

Researchers at FABI this week confirmed the presence of the myrtle rust pathogen, *Puccinia psidii*, in South Africa. The possible presence of the pathogen was brought to our attention by an alert forester, Marcel Verleur of Sappi, who spotted a diseased *Myrtus communis* (myrtle) plant on the KZN south coast. He immediately sent photos of the infected plant to Izette Greyling and Jolanda Roux of the TPCP and CTHB extension programme, who requested samples for analyses. The identity of the pathogen as *P. psidii* has been confirmed through the use of DNA sequence data and morphology.

Puccinia psidii is one of the most important invasive alien plant pathogens and has been described as "the biggest threat to the ecosystem" in Australia. The confirmation of the presence of this globally important quarantine pathogen in South Africa is likely to have substantial negative long-term consequences for both forestry and plant conservation in the country.

We urge all foresters, farmers, botanists and other plant lovers to keep their eyes open for this pathogen and to let us know immediately if you suspect its presence in your area. The pathogen is known only from plants in the Myrtaceae, so start by closely inspecting any such ornamental plants in your garden. These include genera such as *Eugenia*, *Heteropyxis*, *Syzygium*, *Eucalyptus*, *Metrosideros* and others. Since the first incidence of myrtle rust was confirmed from the KZN south coast, we especially urge people along the KZN coast to be especially vigilant. However, it is possible that the pathogen could have been present for much longer and in a much wider area.

Yellow spore (urediniospore) masses of *Puccinia psidii* on various plants in the Myrtaceae (Eucalypt, *Syzygium*, *Eugenia* family)

Please contact: Jolanda Roux (jolanda.roux@FABI.up.ac.za; 0829093202) or Izette Greyling (izette.greyling@FABI.up.ac.za) if you suspect the presence of the disease in your area.