This year sees the ICFR celebrate 60 years since its inception as the Wattle Research Institute (WRI) in 1947. Today the ICFR is described as a “fully fledged, internationally known and respected Forestry Research Centre of Excellence”.

Under the directorship of Dr Shaw, initial research efforts at the WRI focused only on wattle, addressing issues around stand density, site preparation, soil chemistry, fertilisation as well as studies on tannin chemistry. Selection and progeny testing, tetraploid production and hybrids of green and black wattle were also investigated, as was entomological research into insect pests such as bagworm. In 1984, the WRI became the Institute for Commercial Forestry Research and research efforts were extended into growing and managing eucalypt and pine species. In 1997, the ICFR celebrated its 50th anniversary with a Jubilee Seminar. At this event, the (then) Chairman of the Board, Dr Niko Stutterheim, noted that “the research carried out at the ICFR has made a profound and extraordinary contribution to the South African Forestry Industry…”. Today, many of the silvicultural management practices used by the South African Forestry Industry around species choice, site-species matching, re-establishment, fertilisation, vegetation management, coppice management and regeneration are founded on research conducted at the ICFR. We continue to be the only source of improved wattle germplasm in the country, as well as providing the Industry with seed of a number of selectively improved eucalypt species. In addition, the ICFR is conducting critical research addressing long-term site productivity and sustainability issues of commercial forestry.

Without a doubt one of the greatest assets of the ICFR is its staff. Although small in number, the current staff collectively represent 421 person years of service to the Industry. Recognition of this has been through significant investment in developing individual skills and expertise. Personal contribution to the ICFR’s success has also come through stable leadership. There have only been six Directors at the ICFR over the last 60 years, and it is their influence, vision, leadership and management skills that have brought the ICFR to where it is today. However, change has also characterised the ICFR’s history. Over the last 10 years, some of these changes have included a move towards a project management framework in our research approach, with tangible...
New Geneticist

Andrea Louw recently joined the ICFR’s Tree Improvement Programme. Andrea has a Masters Degree in Quantitative Genetics looking at the application of Best Linear Prediction for breeding and clonal production purposes in a Eucalyptus grandis population. She spent some time at the CSIR before joining the ICFR. Andrea completed her matric at St Johns DSG, Pmb and her undergraduate and Honours degrees at the University of KwaZulu-Natal where she was consistently in the top two of her class. When not working, Andrea enjoys ballet, mountain-biking and water sports, and she brings to the ICFR a wealth of energy and enthusiasm.

Contact: Andrea Louw (andrea@icfr.unp.ac.za)

Staff on the Move

Three staff members recently left the ICFR. Jon de Guisti, a Researcher in the Tree Improvement Programme left to go to the United Kingdom to pursue other goals. Campbell Sanderson, a Technician in the Sustainable Forest Productivity Programme has joined NCT Cooperative Timbers, and Francois Oberholzer, former Programme Manager for Forest Engineering is now working for Forestry Solutions. Two more staff will also leave the ICFR shortly; after five years at the ICFR, Dr Janine Campion is leaving at the end of September to go to North Carolina, USA, and Dr Luke Esprey leaves at the end of August, after nearly ten years with the ICFR. We wish all of them well in their new endeavours.

Loss of a Staff Member

It is with sadness that we report on the death of Blessing Mbentse, a Technician working in both the Tree Improvement and Re-establishment Research programmes at the ICFR. Sandile Blessing Mbentse joined the ICFR in June 1991, initially on contract and then subsequently on a permanent basis from March 1994. He remained in the services of the ICFR until his untimely death on the 7th May 2007. At various stages during his 16 years with us he worked in the Eucalypt and Pine Tree Improvement Programmes, the Forest Productivity Programme, the Re-establishment Programme, as well as providing assistance within the ICFR nursery. Within this time many essential skills were learned and included tree climbing for the collection of pine and eucalypt seed, the selection and subsequent grafting of scion, various nursery management skills, as well as the implementation, maintenance and measurement of field trials (particularly those associated with spacing and site-species productivity). These skills, when coupled with Blessing’s strong sense of responsibility, sunny nature and easy disposition resulted in him becoming an invaluable member of the ICFR, and a pleasure to work with. Blessing will be sorely missed by the ICFR, his colleagues and friends alike, and our deepest condolences go out to his family, relations and many friends.

Visitors...

A group of 75 international forestry students recently visited ICFR trials in the Karkloof area as part of a field visit following the International Forestry Students Association (IFSA) Conference held in George. Dr Colin Smith provided the students with an overview of forestry in South Africa as well as a presentation on ICFR research into long-term site productivity, looking specifically at our participation in the CIFOR network, through the Karkloof trial site. The site itself proved topical, as it had recently been destroyed by wildfire. ICFR staff found it a rewarding experience to meet the students who readily asked questions and provided information about their own very different experiences of forestry from their home countries, such as Russia and Sweden.
ICFR’s Janine Campion attended a forest production – silvicultural relationships workshop in June, hosted by the Forest Nutrition Cooperative (FNC). The workshop took place in Alabama, and Janine also visited FNC field sites in North Carolina to discuss mutual research interests.

The theme underlying the workshop was “Leaves grow trees, resources grow leaves, and silvicultural treatments impact resources”. The objective of the workshop was to provide an overview of forest productivity and resource availability as the basis for making site-specific silvicultural prescriptions which are both cost-effective and environmentally sustainable. The current understanding of the ecophysiological foundation of forest productivity, as well as the tools needed to use this information were presented.

In addition, the latest findings in forest nutrition research were addressed, and topics included the factors determining potential productivity, relationships between silviculture and resource availability, an overview of financial analysis of silvicultural treatments, soil physical properties, nutrient cycling and stand growth, and stand responses and prescription guidelines.

A number of field sites were visited in Alabama, including a clone x spacing x silviculture (pruning) trial, a vegetation control x fertiliser study, and a fertiliser x thinning experiment. Colleen Carlson, a previous ICFR employee now based in Virginia, presented an update on the current status of these fertiliser x thinning experiments.

In North Carolina, Janine visited SETRES (South-East Tree Research and Education Site) and the Henderson long-term site productivity project. The original SETRES experiment aims to understand the relationship between forest productivity, resource availability and environmental stress using a Pinus taeda stand as the model, whereas the objective of SETRES 2 is to evaluate the response of P. taeda genotypes to environmental stress. The Henderson long-term site productivity project was established to assess inter alia, the effects of harvesting, site preparation and vegetation control on soil physical and nutrient properties and processes, and the survival, growth and nutrition of P. taeda.

A full trip report containing further details will be published shortly as part of the ICFR Bulletin Series.

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Overseas visits...

Visit to Eucalyptus globulus coppice plantations in South West Australia
by Keith Little

In the early 1980’s, decisions to cease purchasing farmland for pine establishment in South West Australia (due to inadequate economic returns) and to discontinue clearing native forests, resulted in a review of alternative methods of producing timber to meet projected needs. In combination with this were land degradation issues in the wheatbelt and the need for the re-planting of deep rooted species, as well as issues around low economic returns from the traditional agricultural products of wool, wheat and meat.

Based on trials using native Australian species, *E. globulus* showed good potential for commercial pulp production together with some degree of drought tolerance. Due to the scale of land degradation combined with its ownership, rehabilitation options needed to be financially sustainable (if at all possible), or have some costs offset by some form of additional income. Investment came from Japan, with the Western Government putting tax incentives in place for tree planting that provided financial assistance for the large-scale establishment of plantations. From the mid 1990’s *E. globulus* plantations were successfully established in this region, with the subsequent harvesting and export of wood chips starting from the early 2000’s.

As with most eucalypts, *E. globulus* has the ability to regenerate through the production of sprouts, which if managed correctly may offset the high costs associated with replanting. As coppice management in this region was fairly new, a multi-organisation 2nd Rotation Discussion Group related to coppice management was held in August 2006. The group consisted of more than eight organisations that were either directly or indirectly involved with the growing and management of *E. globulus*, the main aim being to develop effective protocols for coppice management. Based on past and current coppice management research conducted in South Africa, this group collectively invited ICFR’s Dr Keith Little to participate in a three day Plantation Industry run seminar focusing on *E. globulus* coppice and related management issues from the 25th to 28th May 2007. Speakers at the workshop included Don White (CSIRO/ENSI) who presented results of coppice versus replant in terms of water balance, growth, physiology and biomass, Francisco Tovar (Murdoch) who gave a summary of his work on *Eucalyptus* basal rot, Steve Walker (Midway Plantations Pty Ltd) who spoke on coppice operations in Midway plantations, and John Campbell (Macspread) who presented results from Macspread trials. Based on published research, Keith presented past and current South African results related to stump preservation, coppice management as well as the killing of stump. This was followed by two days of field visits to various re-establishment sites (17 in total) around Albany and Bunbury to discuss coppice related issues.

In addition to the workshop, Keith was also hosted by staff of the Forestry Research Institute (Oji Paper Co., Ltd) in Albany and Hansol PI Pty Ltd in Bunbury. Various forestry operations were visited, including a number of research plots, harvesting operations (single-grip and feller-buncher), chipping (in-field and dock-side), site preparation, coppice management sites and aerial spraying operations.

Thanks are extended to Oji Paper Co. and Hansol PI Pty Ltd for sponsoring this trip to South Western Australia.

Contact: Keith Little (keith@icfr.unp.ac.za)
ICFR's Colin Smith attended the 7th Workshop of the network on "Site Management and Productivity in Tropical Forest Plantations" of which the ICFOR is a partner. The first part of the workshop was hosted by the Centre for International Forestry Research (CIFOR) in Bogor, Java. The second part included a field visit to forest plantations and of the networks' trials and in southern Sumatra hosted by CIFOR and PT Musi Hutan Persada (MHP) a forestry company with substantial land holdings in central South Sumatra (Sumatera Selatan) province.

Workshop in Bogor

Within the context of sustainable forest management, the network was originally established to evaluate the impact of site (mainly residue) management practices on the productivity of tropical and sub-tropical plantations over successive rotations. This workshop was timed to coincide with the end of the first rotation of many of the network partner sites and served as a "conclusion" to the first phase of research. As such work was presented on the effect of residue management practices on productivity of Acacias, pines and eucalypts and soil processes from the eight partner countries; Brazil, Congo, South Africa, India, China, Indonesia, Vietnam and Australia. At most sites there was a significant effect of slash management on most of the main soil processes that influence stand growth as well as on tree growth such as Site Index, mortality, between tree competition, total biomass, volume and allometric relationships. The intensity of the response to residue management was related to individual soil characteristics.

At the Workshop, papers were presented on a wide range of measurements taken over full rotations on the partner sites such as the rate of macronutrient release from residues, the nitrogen (N) and phosphorus (P) cycle, the rate of macronutrient uptake by trees, nutrient cycling and carbon cycling and its effect on nutrient dynamics. A paper summarising the soil changes of the network sites by Alan Tiarks showed that, in general, major changes in soil chemistry had not occurred over a full rotation and would be unlikely to do so in future provided management practices remained conservative. However the removal of residues resulted in many sites experiencing major losses in Calcium which has yet to be manifest in terms of productivity decline. Some of the results gave key insights into the effect of management practices on growth. For example, Laurent Saint Andre showed that the effect of retaining harvesting residues on growth was related directly to the ratio on nitrogen in the residues to the nitrogen in the soil. The proceedings from the workshop are due to be released by the end of 2007.

Field visit to South Sumatra

After the workshop in Java, the CIFOR group travelled to Sumatra to visit one of the network partners' trials and other research trials in the area. This stage of the trip was hosted jointly by CIFOR and MHP Agriculture and forestry are important players in the regional economy contributing 20% to GDP in South Sumatra. The total forested area in the province is 3.7 million hectares. One third of this is protected/conservation forest, and two-thirds production forest of which half a million hectares is industrial plantation forest, mainly Acacia mangium. Acacia mangium was originally introduced as a plantation species in Sabah in 1966 as seed taken from a single tree in Queensland. It grows well on the highly-leached and well weathered acidic soils that are inherently low in nutrient reserves and are prevalent in Indonesia.

The group visited several sites on MHP plantations including an outgrower scheme which provides nearly 11 000 ha of A. mangium for pulpwood production, a breeding seed orchard of Acacia auriculiformis and Eucalyptus pellita, a clonal trial of A. mangium x A. auriculiformis and a water and nutrient management trial funded by ACIAR. The main interest to the CIFOR network partners was the Site Management and Productivity study at Sodong, one of two CIFOR trials in Sumatra, the other being at Toman further north. Similar to the other network trials the trial consists of several residue management treatments (residues removed, whole tree harvest, broadcast residues and double residues). In addition two nutrition trials were planted adjacent to the network trial consisting of a NP factorial trial and a missing element trial involving calcium and potassium. The trials were planted to A. mangium on a highly weathered clay soil derived from volcanic material and are now six years old. The climate is tropical, the mean annual temperature is about 26°C and the annual rainfall in the order of 3500 mm. Despite relatively high levels of organic carbon (3% in the topsoil) significantly better growth was recorded where the residues were retained on site. Because of this, harvesting operations at MHP consist of extracting only the stemwood from the site and crushing the residues in the windrows under the forwarder during extraction. This has the additional benefit of reducing the level of compaction on frequently wet soils.

The visit to Sumatra was characterised by a number of highlights; the extremely well-organised field day, the hospitality and friendliness of the hosts, the excellent fruit, Java coffee and fried cassava and sweet potato served for “coffee break”, sumptuous Indonesian lunches, and the luxury of air-conditioning and cold (Bintang) beer at the end of several hot tropical days. Thanks are due to CIFOR for financing the entire visit.

Contact: Colin Smith (colin@icfr.unp.ac.za)
A workshop on Hardwood Forest Nutrition was recently co-ordinated by the ICFR’s Sustainable Forest Productivity team. Attended by a number of ICFR members, the focus of the workshop was on understanding the role of nutrition in plantation forests, which is central to productive and sustainable management of plantation forests. Both current and future research initiatives in hardwood forest nutrition were considered, with a view to identifying opportunities to improve productivity of hardwoods, (with the emphasis on eucalypts), for pulpwood, woodchip and sawtimber production. In addition, the workshop looked at plans to conduct research on the effects of management practices on short and long-term nutrient supply to ensure sustainable production of hardwoods. A further objective of the workshop was to identify possible projects that could be developed in conjunction with research partners at tertiary institutions (University of Stellenbosch and Wits). Discussion from the event proved useful and will be developed into a research strategy for the future. It is planned to produce a summary of the workshop as well as a research plan for the programme later in the year.

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ICFR 60th celebrations (contd.)

outcomes from directed research programmes. Strong collaborative partnerships with member companies have facilitated close interaction around project development and planning. Our research outputs have increased in number and quality, while continuing to meet both the criteria of relevance through high quality internal reports, and credibility, through publication in local and international peer-reviewed journals. In many Industry initiatives aimed at addressing problems and meeting challenges, such as the threat of the Sirex woodwasp, it is to the ICFR that Industry has looked to play a leadership and facilitation role.

How important is Forestry research to the South African Forestry Industry today? Mike Edwards, Executive Director of Forestry South Africa, said that he believes research is an investment in the future, and not a cost to the present. At the recent 60th anniversary celebration, held in the ICFR’s Information Centre, he described the current ICFR as “being hugely more relevant and of importance that it was 60 years ago.” “The ICFR has earned the greatest respect of the Industry and the Industry has the utmost confidence on its ability to meet the challenges of the future” he said in his address to staff and Board members.

Sixty years on the ICFR is reviewing the achievements and contributions it has made to the Industry it serves, and identifying key focus areas and structures that will ensure it is able to both continue meeting Industry’s current needs, while proactively looking at facing future global challenges.

Current Director Colin Dyer identified the greatest challenge for the Institute as being to direct its research efforts towards helping the Forestry Industry increase productivity from a limited land resource, in a responsible and sustainable way, while addressing the many risks that exist, such as pest and diseases, fire, climate change. “There is also an urgent need to support new entrants into the tree growing business to achieve the same,” he said in his speech at the 60th celebration lunch.

In order to meet the future challenges, the ICFR will have to change. Professor Charles Breen, Chairman of the ICFR Board of Control highlighted this need to change, but cautioned that it be done slowly, ensuring that we retain the institutional knowledge and memory, the wisdom, reliability and integrity that characterises the ICFR, and which the Industry values so highly and continues to invest in.

In closing, Mike Edwards described the ICFR as “ready to embark on a new chapter, stronger, more versatile. Immensely more experienced and significantly more capable of tackling and resolving the many challenges that the Forestry Industry will face in the years to come.” Under the leadership of Colin Dyer, a committed staff of researchers and technicians together with a strong support team aim to ensure the success of the ICFR continues into the future.
ICFR Field days around the country

The past six months has seen the ICFR hold field days around the major forestry growing areas of the country. ICFR Field Days are co-ordinated in conjunction with Regional Interest Groups comprising Industry members, and as such the programmes focus on issues relevant to the particular regions. In addition to facilitating presentations of relevant and practical aspects of our research, the field days also provide the ICFR staff with valuable opportunities to network with foresters, growers, managers and others working in the Industry.

The first field day of 2007 was held at the ICFR in Pietermaritzburg, and, in addition to information on the threat to the Industry associated with the Sirex woodwasp, featured presentations on vegetation management, including post-establishment weed control and the effect of factors such as pit size and water application on early survival and growth of eucalypts. ICFR’s librarian Desiree Lamoral discussed the ICFR Information Service as well as the many challenges presented by changing information in society. Field visits included a stop at the NCT’s plantation at Hilton College to discuss the mid- to late-rotation results of the promising Eucalyptus biturbinata trials, as well as a trip to the Sappi Shaw Research Centre to look at mid-rotation results of a eucalypt operational gain trial.

At the field day in Sabie, Mpumalanga, current pests were again the topic of discussion, and Hans Merensky presented some of their experiences in monitoring population buildup of the bronze bug, Thaumastocoris australicus, currently infesting many of the eucalypt species hybrids around the country. Other challenges facing foresters, including managing weeds such as bramble and looking at factors influencing early survival and growth of pine were also discussed. A field visit to a pine seed orchard provided a useful view of what goes into producing and collecting nursery seed.

Central Timber Co-operative (CTC) hosted the Central Field Day at their stunning Longridge plantation near Paulpietersburg. Established in 1996 by CTC as part of a joint initiative with the Sumitomo Corporation and Nippon Paper, Longridge comprises 3668 ha of land, of which around 2555 ha is planted to pine, wattle and gum. Pests were once again under discussion with a presentation on the efforts of the Pine Fusarium Working Group established to develop practical guidelines for managing the threat of the Pitch Canker Fungus, Fusarium circinatum. Field visits around Longridge provided an opportunity for Robin Gardner to discuss some of the eucalypts currently being investigated as alternatives to the commercial species, including Eucalyptus bicostata and E. nobilis.

The Zululand field day was held in May at Kwambonambi, and featured some of the eucalypt research under way at the ICFR. Commercial deployment of eucalypt vegetation management standards as well as results from site species and coppice trials were presented. A useful discussion around establishment after mechanised harvesting concluded the day.

ICFR Field Days are open to anyone working the Industry. For more information on these events, contact Sally Upfold, ICFR Communications Manager sally@icfr.unp.ac.za or 033-386 2314.
Zululand Regional office moves

In May this year, a decision was made to move the ICFR Kwambonambi office to new premises. Several reasons surrounded the move, the main one being that Mavuya was very isolated, both from an office and a residential point of view. Communication was also becoming a problem as the cell phone signal was almost non-existent and the telephone lines were constantly under threat from both felling and harvesting operations.

The office is now situated in Monzi which makes good sense, with several trials already existing in the nearby SQF Dukuduku plantation, as well as with a new, large and long term research project presently being implemented in this same area. The office is also bigger, which enables Denis and his “secretary” to work more comfortably side by side and the outbuildings provide safe and secure storage for the many pieces of equipment, machinery and chemicals needed for an efficient operation.

The address is Plot M23, First Avenue Monzi and the new telephone number is 035 – 550 4432. Denis’ cell number remains the same.

Contact: Denis and Bev Oscroft (oscroft@absamail.co.za)

ICFR reaches out to schools in the Sabie community

ICFR’s Sabie regional office recently made donations to two local primary schools situated in the Sabie area. The donations consisted of an secondhand fax/answering machine and a secondhand photocopy machine, both of which were no longer in use, due to the recent upgrading of office systems earlier in the year.

The donations caused great excitement at both of the schools. At Harmony Hill primary school, the principal, Meurice Johnson, provided the Sabie staff with tea and delicious homemade treats made by parents of the school. At Lindane Primary School in Simile, both the senior school choir and the teacher’s choir performed various songs thanking the ICFR staff for their donation, a moving experience.

For the local ICFR staff, it was this appreciation that made the exercise worthwhile, and highlighted how those things that are collecting dust in the corner that ‘technology has left behind’ can so often be used by other people. We hope that both Primary schools benefit from the ‘last legs’ of these two machines.

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