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## R&D Works – February 2016

Welcome to our February edition of the R&D Works newsletter.

This month our stories include an FWPA funded project that assessed Carbon stocks and flows in native forests managed for multiple use in SE Australia; a software program to predict the likely composition and direction of bushfire smoke events; a new study into the robustness of RFID log tags in handling and storage; an application by researchers in New Zealand to apply for beyond-line-of-sight piloting of UAVs; a project utilizing near infra-red (NIR) spectroscopy to rapidly measure in-production pulp yield attributes; and notification of an upcoming FWPA R&D project call closing 15 March.

I do hope you enjoy reading about these exciting research projects and their applications.



A handwritten signature in black ink, appearing to read "Chris Lafferty".

Chris Lafferty  
R&D Manager  
FWPA

## MAIN NEWS

### FWPA call for project funding proposals February 2016

FWPA invites the submission of detailed research proposals for projects commencing from 1 May 2016 addressing published FWPA industry research priorities. Details of current research priorities can be found in the series of industry investment plans available from the FWPA website.



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## ForestHWP – a new approach to the assessment of the carbon cycle in native forests managed for multiple use

Australian climate change policy has largely overlooked the potential role of forestry in mitigating climate change. When determining the climate impacts of any industry sector, it is important to adopt a true life cycle assessment approach that takes into account all relevant carbon emissions and removals.

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## First formaldehyde-free, bio-based adhesive for manufacturing particleboard

A Corvallis startup is making strides to be the first to introduce a formaldehyde-free adhesive used to manufacture particleboard and medium density fiberboard.

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## NZ forest research to apply for drone beyond-line-of-sight flying

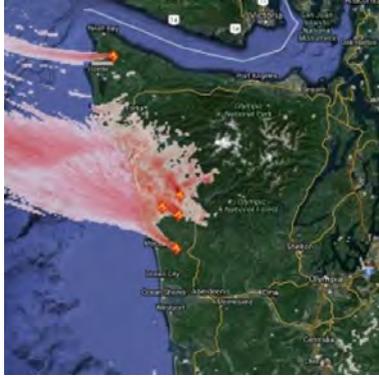
Scion, the forestry Crown research institute, will become the first organisation in New Zealand to fly drones beyond line of sight when it seeks approval under new Civil Aviation Authority rules to use unmanned aerial vehicles (UAVs) for forest monitoring.

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## A novel approach to predicting the impact of wildfires

When wildfires blaze, the smoke matters. It threatens everyone, from the firefighters and helicopters battling the flames, to the public at large.

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## WOOD HARVESTING TRANSPORT AND LOGISTICS



### Will RFID tags remain on logs during handling and storage?

Using RFID tags on logs greatly improves the efficiency of their traceability – but will they remain on the logs in the harsh logging environment? The logging industry has been considering various ways to improve the traceability of logs - especially for high value logs or to ensure that logs do not originate from illegally logged forests.

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## WOOD PROCESSING AND MANUFACTURING



### New sensors for rapid evaluation of high-yield pulp attributes

Most high yield pulp mills produce various grades of pulp and experience frequent grade changes on their production lines. In order to maximise production yields and maintain quality, characterisation of pulp samples must be conducted and related back to the line in a timely fashion.

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### Time study of Australian forwarders using GPS and vibration sensors

Time and motion studies of forest harvesting machines are an important component of forest operations research. The trouble is that traditional manual methods require a skilled observer, are time consuming, limited in duration and potentially



hazardous. Few automated techniques to date have had the breadth and ease of application to conduct long term autonomous studies.

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## World first self-driving truck on public highway

Daimler Trucks has shifted gears in its ongoing effort to develop autonomous vehicles. By fitting its Highway Pilot self-driving system to a Mercedes-Benz Actros truck and steering it down a stretch of Autobahn 8 in Germany, the company has marked the first time an autonomous production semi has been tested out on public roads.

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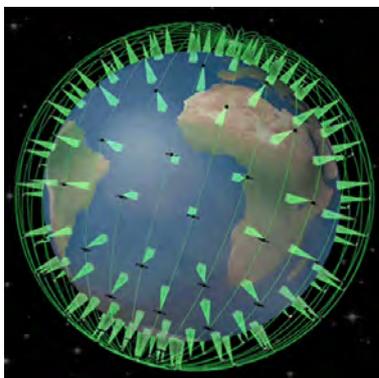
# FOREST GROWING



## New online tool illustrates future forest change

An innovative new tool has been developed in the US to show detailed views of current forests and generate high-resolution images of what these forests are likely to look like in the future.

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## Satellite sensors would deliver global fire coverage

NASA are developing a network of space-based sensors to quickly locate wildfires around the globe. The system, called FireSat, is made up of 200 thermal infrared imaging sensors on satellites and will represent the most complete monitoring coverage of wildfires ever from space.

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# TIMBER CONSTRUCTION AND DESIGN



## Designing safer buildings in earthquake-prone cities

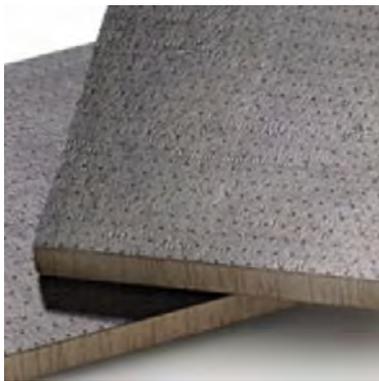
The combination of two proven construction methods could lead to safer wood-frame buildings in earthquake-prone cities. University of Alabama and Colorado State University professors are combining the light wood frame system (LiFS) and cross-laminated timber (CLT) to form a self-centring structure that could better withstand the force of an earthquake.

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## NEW PRODUCT INNOVATIONS

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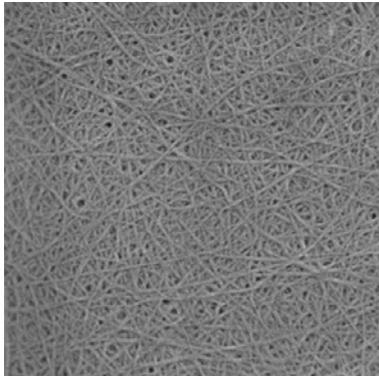


### New bio-based lightweight material unveiled

The research institutes Inventa and Swerea SICOMP have worked together to develop the first carbon-fibre composite 'demonstrator' from softwood lignin. The lightweight, fuel-efficient car of the future can be made using this material.

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### Turning wood into car parts

The molecules of plant fibers are being transformed into a light-weight material five times stronger than steel. Cellulose nanofiber has the potential to be used to make everything from auto parts to electronic displays.

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