Forest technical services to the local and global forest industry

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INTRODUCTION

Forestry Tasmania is a Government Business Enterprise that has the statutory responsibility for the management of 1.5 million hectares of Tasmanian State Forest land.

This land contains 39% of Tasmania’s forests.

Forestry Tasmania holds a special position in the Tasmanian community. The people, through its Parliament, have entrusted the care of its State forests to Forestry Tasmania.

On behalf of the Tasmanian people, Forestry Tasmania seeks to maximise the environmental, social and economic benefits from the Tasmanian forest asset.

Forestry Tasmania has maintained several national and international accreditation and certification systems.

These include the Environmental Management System ISO14001, Occupational Health and Safety, Australian Forestry Standard and the Programme for the Endorsement of Forest Certification (PEFC). This ensures that our forests are managed in a sustainable and socially acceptable manner.

Forestry Tasmania has developed significant expertise in forest management. This includes world-class scientific research and technical knowledge as well as timber market development, timber industry investment attraction and the management of successful tourism developments.

Forestry Tasmania is able to deliver specialist technical services to customers across the globe.

These services provide the basis for improving forestry standards in countries that demand high standards of forest management.
During the previous financial year Forestry Tasmania’s accomplishments included the following:

- regenerated and established 16,700 ha
- harvested 12,900 ha resulting in the sale of around 3.5 million tonnes of timber
- maintained internationally recognised PEFC certification
- consultancies worldwide covering a wide range of forest management and research.

These services include but are not limited to:

- forest pest and disease monitoring and control
- forest management, both native and plantation forestry
- tree improvement through tree breeding and genetic selection
- identifying and facilitating the development of markets for timber and timber products
- mapping and resource inventory assessment (see LiDAR Case Study).

Across natural forests, hardwood and softwood plantations.

Marketing and management of these services to outside customers is coordinated through the Forest Technical Services business unit within Forestry Tasmania. This ensures that the customer receives a quality service fully meeting all their expectations in the agreed time period.

Plantations integrated into the landscape

Forestry Tasmania laboratory research, Hobart
LiDAR-based Inventory and Mapping Services

Forestry Tasmania is a national leader in the use of modern LiDAR imagery (light detection and ranging) for developing new generation mapping and inventory products to enable precision forestry and associated land and hydrological management.

How does it work?

The LiDAR instrument fires rapid pulses of light (laser pulses) at the landscape from an aircraft and a sensor mounted on the instrument measures the amount of time taken for each light pulse to bounce back. Because light moves at a constant and known speed, the LiDAR instrument can then calculate the distance between itself and the target with high accuracy. By rapidly repeating the process, the LiDAR instrument builds up a complex ‘picture’ of the terrain it is measuring. The information obtained can also include GPS referencing data.

Terrain and Hydrological Modelling

High-accuracy digital elevation models and contours are produced from LiDAR:

- for infrastructure planning
- for forest harvest planning
- for projection of inundation areas for proposed dams
- for accurate location of rivers, creeks, water-courses and infrastructure.

Forest Modelling

Accurate forest models to describe:

- forest distribution and structure
- timber volume and carbon mapping
- plantation site quality and performance assessment.
Geographic Information Systems

- practical solutions to analyse and display data
- system delivery
- training and support.

LiDAR is an example of modern technology being used for a range of complex land management applications. Within forestry LiDAR identifies many forest management and forest development opportunities, some not previously identified by ground-based surveys and assessments.

Forest Management.

Forest Management deals with natural forests as well as softwood and hardwood plantations. It undertakes road planning and construction, site preparation, forest establishment, silvicultural operations, planning and harvesting, fire prevention and fire fighting.

Market development.

Forestry Tasmania has extensive experience in establishing local and international markets, and in managing sales into these markets. It has particular experience and expertise in working with Chinese markets.

Research.

Forestry Tasmania has excellent scientists whose fields cover forest biology, forest pests and diseases, genetics and tree improvement, hydrology and silviculture research.

Forest health surveillance.

When we plant trees whether in plantations, shelterbelts or parks and gardens we expect those trees to survive and remain healthy. All too often, though, those aims are upset by pests and diseases that attack the trees.

Forestry Tasmania's health surveillance team are experts in all keys aspects of the operational management of pest and disease affecting trees, forests and, particularly plantations. This expertise is summarised as follows:

Surveillance and monitoring

Surveillance and monitoring is all about early detection. We have developed a surveillance method using special traps called static traps to detect developing outbreaks of some wood-boring insects in plantations. We use monitoring tailored to the pest to detect the early stages of a developing outbreak.
Identification and diagnosis
We have specialists in entomology and pathology who are able to identify and diagnose pests and diseases affecting our main tree species. The Tasmanian Forest Insect Collection housed at Forestry Tasmania has reference specimens of virtually all insect pests affecting the main tree species in Tasmania and many that are pests nationally and internationally. This valuable resource also houses reference specimens of many of the natural enemies of forest insect pests.

Recommendations for treatment
We have several decades of experience in developing ways of managing forest pests and diseases. Importantly, our management expertise has evolved closely with our forestry operations giving us confidence that our recommendations are practical.

Analysis and research
The knowledge we have gained from four decades of pest and disease research and over a decade of health surveillance is a powerful tool for problem solving. Through tapping our specialist expertise and accessing our extensive databases of information on forest pests and diseases, we can find answers to new questions about pests and diseases.

To prevent unacceptable losses due to pests and diseases, we need to detect the pests and pathogens (which cause disease) early, before damage becomes severe. This gives us time to identify the pest or pathogen and take steps to manage the problem. Even when severe damage does occur, expert advice can provide a course of action that can be taken to help the trees recover.

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