

Final Report
Project NT010



Conceptualise and develop a functioning Model for Collaborative Integrated Pest Management within the Tasmanian Forest Industry

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Launceston Centre

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**NATIONAL INSTITUTE FOR
FOREST PRODUCTS INNOVATION
LAUNCESTON**

**Conceptualise and develop a functioning Model for Collaborative
Integrated Pest Management within the Tasmanian Forest Industry**

Prepared for

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by

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Project Background:

In late 2018 members within Tasmania's forest growing sector approached Technical Forest Services (TFS) expressing an interest in TFS stepping into a facilitator role for the establishment of an integrated pest management project. A new collaborative concept for the forest industry within Tasmania. Technical Forest Services in their roles as facilitator brought a long standing history in industry as an independent and unbiased third party forest health surveillance across multiple stakeholders.

The establishment of an integrated pest management program was viewed as a means to build upon meetings held some years prior centred around the value an integrated pest management concept could provide. With the main project outcomes generalised below;

1. Galvanising relationships within all levels of the Tasmanian Forest Industry.
2. Provide a structured process means for communication amongst all interested stakeholders.
3. Develop a process to document and share reportable evidence of pest management activities.
4. Drive an increase in industry directed research initiatives and provide a format to both fund and advocate such initiatives.

The National Institute of Forest Products Innovation (NIFPI) funding model was identified as the perfect catalyst to further drive widespread industry buy-in to the concept. The aforementioned sequence of events led to the successful proposal for the NIFPI project NT010. *Conceptualise and Develop a Functioning Model for Collaborative Integrated Pest Management within the Tasmanian Forest Industry*. This report highlights some key outcomes and achieved for the duration of the NIFPI project and highlights the key goals of the Tasmanian Integrated Pest Management System as it continues to grow beyond the project.

Executive Summary

This project set-out to establish an understanding of forest industries needs in terms of pest monitoring and management at a strategic level. Firstly, to establish a steering committee of interested stakeholders to provide a forum for pest management developments and issues. Culminating in the development of an IPMG guiding policy for the Tasmanian forest growing sector.

Introduction

Communication and Collaboration

The forest management sector in Tasmania has implemented forest health surveillance processes as a management tool for decades. These monitoring and reporting processes are almost exclusively undertaken at an operational level and the details not usually shared outside of an organisation. Any inter-agency pest management strategies has been largely informal and information spread heavily reliant on established personal relationships. The traditional limitations to

spread of pest monitoring and management communication has meant that a high proportion of ongoing management activities by organisations have been reactive in nature.

Regulation

Regulators bearing the weight of public expectation are also increasing the expectation for forest managers to explore alternatives to the tried and tested 'hard' pest management approaches of yesteryear. Instead favouring 'softer' barrier, behavioural and control measures. This expectation has been highlighted by the below quotes;

The Tasmanian regional forestry agreement (RFA) extension signed in August 2017 stipulates;

- Development of integrated management systems for weeds, browsing mammals, and insect pests to reduce or eliminate chemical use.
- Cost effective detection, evaluation of impacts, identification and control of pests and diseases in native forests and plantations.
- Support research and development into alternative, chemical-free pest and weed control systems for intensively managed forests.

Responsible Wood (4708-2013, Criteria 5) mirrors the expectations listed in the RFA above call for the actions listed below;

- Forest managers shall prioritise, plan, and implement practices to support the maintenance of forest ecosystem health and vitality.
- The forest manager shall identify exotic and endemic weed species and pest animals and take action to control or eradicate them within the defined forest area.
- The forest manager shall periodically evaluate the effectiveness of such control actions and modify the control methods where necessary.
- Managers will seek to minimise their chemical use and any adverse impacts arising from their use.

The Forest Stewardship Council (FSC, 2009) expectations mirror those listed above, while also prioritising;

1. The identification and avoidance of 'highly hazardous' pesticides – the use of which is only possible in exceptional circumstances;
2. Promotion of 'non-chemical' methods of pest management;

From the examples listed above it can be clearly seen that there are strong regulatory pressures being imposed on forest managers to change their approaches to pest management. With a collective push from all regulatory levels for these changes to be brought about in a collaborative manner through the use of integrated pest management principles.

Biosecurity and Research Extension

A report produced by Forest and Wood Products Australia and the University of the Sunshine Coast titled; *Evaluating the costs and benefits of managing new and existing biosecurity threats to Australia's plantation industry* Project No: PNC362-1415 has been quoted and summarised below;

The risk of exotic pest incursions is increasing, despite international regulations regarding some high-risk pathways (e.g. wood packaging) as well as pre-border and border inspections programs. Over the last 15 years, pest interceptions at the border have been increasing, associated with a simultaneous, rapid expansion in the quantity of imported material and travellers (potential pest vectors) arriving in Australia.

(The Forest) Industry has not been able to make informed decisions about prioritising research funding for managing biosecurity threats because there were few, if any, cost-benefit analyses to provide a benchmark for Australia. As a result, investment in forest biosecurity has not kept pace with the escalating risk.

In the invasive pest scenario, there are substantial returns on investment when forest biosecurity programs focus on preventing establishment, even of a single pest in one plantation estate. This suggests even bigger returns on programs that target many pests across the national plantation estate.

The value that an integrated pest management strategy would provide in relation to the three parameters discussed above;

- Improved relationships between managers and advisors within the forest sector;
- Financial benefit brought about more effective control methods and operational synergies;
- Formalised reporting systems to provide evidence of continual improvement for regulators.
- Provide an entity from which the industry collective can engage with interested stakeholders and authorities.
- Facilitate research opportunities in the forest pest (introduced or indigenous) management for the betterment of the industry as a whole.

Project Objectives:

The project aims to establish a collaborative industry wide working IPM framework. In order to achieve this objective three distinct stages were undertaken.

- Signing of the NIFPI agreement for project NIF075-1819.
- Summaries provided to the steering committee and conceptualise of the IPMG objectives.
- Draft IPMG framework blueprint produced and circulated to the committee.

Initial Project Deliverables

The information below summarises the deliverables outlined in the original project proposal.

Build a working framework for integrated pest management.

Comprising 6 Key Performance Indicators;

Governance

- Chairperson
- Steering Committee (Cross agency).

Communication

- Reporting format and frequency.
- Establish collaboration channels.
- Co-operate outbreak management to improve economic, social and environmental outcomes.
- Further refine biosecurity reporting mechanisms.

Resourcing

- Establish project outlines and operating costs.
- Identify funding opportunities to facilitate outcomes.
- Co-ordinate industry and key stakeholder funding obligations.

Training

- Reconciliation of knowledge bases amongst interested agencies, DPIPW, University of Tasmania and agricultural advisors.
- Development of a field guide for forest practitioners both of endemic and exotic pest species.
- Provide training and guidance to key operational personnel.

Operations

- Provide access to all parties to the collaborative health program.
- Explore opportunities using technology for data capture and reporting. Remote Sensing/Phone Apps.
- Formulate measurable triggers to focus surveillance.

Research

- Identify research opportunities within the IPM process.
- Construct a structured process for conducting of relevant research opportunities.

Project Outputs

The subsections below outline the outcomes of the NIFPI funding project and highlights areas which are ongoing.

Establishment of the Tasmanian Integrated Pest Management Steering Committee

IPMG Steering Committee was finalised during a round table discussion conducted on 21/03/19. The steering committee is made up of the members listed below;

- **Chairperson;** Clive Woolridge (Technical Forest Services)
- **State-wide Coordinator;** Justin Baily (Technical Forest Services)
- **Steering Committee;**
 1. Don Aurik (Timberland Pacific)
 2. David Bower (Private Forests Tasmania)
 3. Lindsay Cannon (Forico)
 4. Shared position between Robin Dickson and Stephen Rymer (PF Olsen Australia)
 5. Gary Harper (AKS Forest Solutions)
 6. Jye Hill (Norske Skog)
 7. Mark Oliver (AKS Forest Solutions)
 8. Wray Watts (Forico)
 9. Dean Williams (Sustainable Timber Tasmania)
 10. Karl Wotherspoon (Sustainable Timber Tasmania)

The steering committee represents interested parties with a wide breadth of operational, managerial, technical and advisory backgrounds.

IPMG Steering Committee Meetings Overview

Three steering committee meetings have been held since the commencement of the IPMG project with the key themes of each summarised below.

- **21/03/2019:** Establishment of the steering committee and conceptualise industry driven key pest management goals. The steering committee voted to pursue pest management as a focus area in the infancy of the project. With the potential to include wider forest health themes including nutrition developments in a second stage. All interested parties supplied 2019 establishment information for the development of spatial summary maps for circulation amongst the steering committee members.
- **06/06/2019:** Annual establishment maps were circulated amongst all committee members and the ongoing merits of this sort of knowledge sharing discussed as an inter-agency communication tool. Began discussions

relating to the merits or otherwise of standardising the invertebrate monitoring process across all hardwood growers/managers.

- **17/07/2019:** Issues in vertebrate browsing management and a brief review into the industry driven vertebrate strategies. Further evaluation of the current hardwood invertebrate browsing monitoring methods and their existing control triggers.

The table below outlines the representative numbers in attendance at each of the 3 meetings. Evidence of the ongoing commitment of the signatories to the collaborative IPMG concept.

Meeting Date	AKS	Forico	Norske Skog	STT	PFT	PFOA	TPPL	TFS	Totals
21/03/19	2	2	1	1	1	1	1	2	11
06/06/19	1	1	1	2	0	1	1	2	9
17/07/19	1	2	1	3	1	1	1	1	11

Table 2. Meeting recruitment numbers for each of the 3 IPMG meetings.

1. Guiding Principle:

The integrated pest management group (IPMG) will provide a forum for all interested stakeholders in the planning, monitoring, control and review of priority pests in a production forestry context. Striving to build a culture of pest management collaboration and shared ownership for the betterment of all stakeholders in the forest growing sector.

2. Scope

The guiding framework applies to all signatory organisations across the full extent of the Tasmanian forest growers sector. From small hold forest growers through to industrial land managers.

3. Governance

3.1 A The Tasmanian Integrated Pest Management steering committee will be maintained as a standalone entity to further pest management strategies. The committee will be governed by a steering committee made up of representatives from interested stakeholders.

3.2 A chairperson will be nominated by majority vote of the steering committee. The chairperson may be an interested representative from any interested stakeholder to the Tasmanian forest growing sector.

4 Collaboration

4.1 The IPMG will foster collaboration for the betterment of the forest growing sector in Tasmania.

4.2 Any interested stakeholders will at all times have an equal opportunity to engage with the integrated pest management system.

4.3 Shared ownership of the goals of the IPMG.

4.4 Centralise all shared data to an open repository. Allowing unrestricted access to all members.

5. Communication

5.1 The working group will commit to the open sharing of all information to the betterment of the IPMG.

5.2 Members of the IPMG will actively engage with interested private advisories and government authorities.

5.3 An ongoing commitment to ensuring that timely communication of control activities in maintained amongst interested parties.

6. Reporting

6.1 The steering committee will commit to conducting quarterly meetings.

6.2 Incident response meetings may interject the formal meeting structure at the digression of the IPMG.

6.3 Summary reports will follow any major meeting and/or activity with aspects affecting the integrated pest management system.

6.3 Subcommittees may be established to facilitate and manage specialist projects or discreet aspects of the pest management objectives.

6.4 Systematic collation and distribution of collaborative landscape level management information.

7. Regulatory Expectations

7.1 Ensure that all integrated pest management processes exceeding the expectations of prescribed and voluntary regulatory standards.

7.2 Provide a formal entity for the documentation of integrated pest management strategies and process for regulatory bodies.

8. Operational Drivers

8.1 Reasonable effort should be made by interested parties to explore opportunities to exploit operational synergies.

8.2 Maintain an ongoing commitment to the reduction of 'hard' control methods.

9. Resourcing

9.1 Shared commitment to develop trained individuals in integrated pest management systems.

9.2 Provide a forum to explore short and long term funding opportunities of the IPMG.

9.3 Extend the capacity of all levels of pest management by exploring systemic process streamlining and integration of technologies.

10. Research and Development

10.1 Identify and facilitate research opportunities.

10.2 Developed a structured process for the collaboration and ownership of IPMG driven research activities.

10.3 Build direct communication channels between industry and research facilitators.

2018-19 Establishment Maps

In order for operational synergies to be explored it was identified that an information driven trigger be trialled. To meet this objective, it was suggested that the circulation of spacial establishment maps reflecting the proposed 2019 planting schedules for all interested organisations may be an appropriate catalyst to initiate these cross-agency discussions. An example of which is included below;

Figure 1; A representation of the circulated 2019 establishment maps circulated amongst steering committee members. A catalyst to start the conversation relating to operational synergies.

All land managers with active planting programs throughout 2019 generously provided the required spatial data enabling Technical Forest Services to create the establishment maps. The advantages of this as a decision making tool at a landscape level data will be evaluated at the conclusion of the 2019 management season. While crude in the first instance all interested parties found value in the supplied maps and the imitative will likely continue to evolve across subsequent seasons.

Project Challenges

1. There were initially difficulties in coordinating a meeting time conducive to all steering committee members being able to attend. It was deemed important that all organisations involved in the process were afforded the opportunity to supply representatives. Especially important in the early meetings. This causes a number of delays especially in the scheduling of the first meeting.
2. Differences in each steering committees members priorities and expectations in relation to the integrated pest management system was a challenge faced early. The initial meetings were important in developing a guiding policy which reflected the aims of the steering committee collectively.

Ongoing Objectives

1. Summary report provided to Biosecurity Tasmania to initiate a channel through which the IPMG can engage.
2. Identify research opportunities and engage interested parties relevant to this.
3. Continue discussions regarding the merits, or otherwise that standardisation of the hardwood monitoring processes across the industry could provide.
4. Facilitate the vertebrate browsing review and explore the potential for a cross agency trial of non-lethal control measures.
5. Examine the funding models employed by sister IPMG programs in Western and South Australia. Identify a funding structure to continue the IPMG beyond the termination of the NIFPI project.
6. Explore the potential for an app based forest health data capture and spatial reporting system.
7. Further develop the use of drone technology in the forest health monitoring processes.

References:

A. Carnegie, S. Lawson, N. Cameron, T. Wardlaw, T. Venn (2017) Evaluating the costs and benefits of managing new and existing biosecurity threats to Australia's plantation industry, Forest and Wood Products Australia, pp. 01-187

T. Wardlaw, N. Cameron, A. Carnegie, S. Lawson & T. Venn (2018) Costs and benefits of a leaf beetle Integrated Pest Management (IPM) program. I. Modelling changes in wood volume yields from pest management, Australian Forestry, pp. 81:1, 46-52

S.Candy (1999) Predictive models for integrated pest management of the leaf beetle *Chrysophtharta bimaculata* in *Eucalyptus nitens* in Tasmania. PHD Thesis: University of Tasmania. pp. 01-141.

I. Willoughby, C. Wilcken, P. Ivey, K. O'Grady and F. Katto (2009) FSC Guide: To integrated pest, disease and weed management in FSC certified forests and plantations. FSC Technical Series No 2009 – 001. Forestry Stewardship Council, International Center. pp. 01-19.

R. Nadel, M. Wingfield, M. Scholes, S. Lawson & B. Slippers (2012) The potential for monitoring and control of insect pests in Southern Hemisphere forestry plantations using semiochemicals, Annals of Forest Science (2012) pp. 69:757–767

A. Clarke (1995) Integrated pest management in forestry: Some difficulties in pursuing the holy-grail. *Australian Forestry*, 58(3), pp. 147-150.

Australian Standard: Sustainable Forest Management (AS4708-2013), Australian Forestry Standard Limited, CSIRO, ACT. pp. 33-34.