

# An Education and Training Framework to support Bushfire CRC Research Adoption

*The Bushfire CRC Education program builds Australian and New Zealand research capability and extends the research outputs to end users and to the community through education and training initiatives in partnership with our stakeholders*

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## ***Document History***

### **Document Amendments**

<b>Version</b>	<b>Date</b>	<b>Summary of Changes</b>	<b>Author</b>
V1	01/12/08	Summary of Bushfire CRC Education program planning – for consultation with Program Leaders and BCRC staff	J. Lumsden
V2	28/01/09	Draft Framework for review and feedback - Stakeholders	C. Owen, N Krusel & J Lumsden
V3	6/02/09	Revised Draft – includes Stakeholder feedback	C. Owen, N Krusel & J Lumsden

### **Attachments**

	<b>Name</b>
2	Report on Education and Training Program Consultation
3	Education and Training Plan
4	Calendar of Education and Training activities

### **Related Documents**

<b>Name</b>	<b>Date</b>
Bushfire CRC Commonwealth Agreement 2003 and Deed of Variation 1 2008	Oct 2008
Bushfire CRC Research Adoption Strategy 2008	Feb 2008
Analysis of Consultation to develop the Education Framework	Dec 2008
AFAC 2008 'Thinking Requires Knowledge' – An Approach to Knowledge Creation (V0.7, Jan 2009)	Jan 2009

## ***Executive Summary***

The Bushfire CRC research adoption relies heavily on an education and training program. Following consultation with researchers and with users, a framework and plan of education and training activities have been developed.

The program summarises education and training activities based on the four outcome themes endorsed in the Bushfire CRC Research Adoption Strategy:

1. Aerial Suppression
2. Prescribed Burning
3. Protecting Firefighters
4. Community Safety and Engagement.

These integrated outcomes are intended to draw together research outcomes from particular research projects in a way that adds value for the industry. For a summary of how the individual projects within the traditional Bushfire CRC program areas are included within the integrated outcomes discussed here refer to the website <http://www.bushfirecrc.com>

The approach to the delivery of integrated outcomes includes pathways of increasing depth and complexity to meet a range of different needs for information, comprehension and application. Seminars and forums are intended to consist of short presentations of information and to include briefings; workshops are anticipated to be more interactional and to assist practitioners with applying the content to their own context. Specialist courses and then extension work with trainers to enhance their expertise are expected to contain considerable detail. In addition, planning is in progress to embed research outcomes into formal education pathways, which include vocational education and training and tertiary education.

The approach to integration is in alignment with the recommendations contained in the 5<sup>th</sup> year review of Bushfire CRC performance.

The plan of activities using the integrated outcome themes is summarised in the Table 1, and the supporting consultation and rationale follow.

Table 1: Summary of education and training activities by

	<b>Aerial suppression</b>	<b>Prescribed Burning</b>	<b>Protecting Fire-fighters</b>	<b>Community Safety and Engagement</b>
Seminars and forums	Impact of aerial suppression research on industry operations *	High Fire Specialist forums  Prescribed Burning Summit  Briefings for Departmental Heads	Enhancing volunteerism  Safe decision making	Evaluating Stay or Go*  Bushfire Arson*
	½ DAY PRE CONFERENCE SEMINARS 1- Fire Weather 2- Fuel Systems			
Workshops	Risk Management techniques for plantation forests  Fire Management Business Model  Workshop for Head Office Policy and Planning Officers		Protecting fire-fighters  Enhancing volunteerism	Community Safety & Engagement Update  Evaluating Community Education programs workshop
‘Climate change and its impact on the management of bushfires’ workshop				
Specialist courses	Fire Behaviour /Fire Weather/Fuel Systems		Protecting fire-fighters	
Building trainer expertise				
Higher education	Meeting of all interested providers to advance course development as appropriate			
Vocational Education	Involvement of AFAC in specialist course development to embed into training packages			
		Ecological processes and fire regime impacts	Safe Decision Making  Fire fighter Health and Safety	Building and occupant protection Effective risk communication/Community Education Evaluation

\* These seminars/forums are part of the industry impact assessment process for the purpose of engaging users to inform the research adoption.

## **Background**

Program E contains three Commonwealth Agreement deliverables. Notably to achieve:

- E1 Well Qualified, Integrated and Self-Renewing Fire Research Community
- E2 Australia recognised as One of the Three Leading Countries In Bushfire
- E3 Fire Services and Communities Aware and Trained in their Relevant Bushfire Risk Management Element

Outcome E1 is addressed by a strong Bushfire post-graduate program, the aim of which is to produce high quality researchers who will enhance Australia's position in fire management and mitigation research.

Outcome E2 is addressed through the promotion of international exchanges between researchers and post graduates and to develop international collaboration with other leading-edge research institutions. The post-graduate program supports this outcome by integrating students fully within the Bushfire CRC research community while enhancing their learning experience through varied exposure and professional development opportunities.

Outcome E3 is addressed by this Framework and supports research adoption through working closely with stakeholders to identify research outcomes suitable for learning and professional development pathways for fire services and educational programs for communities.

The four outcome themes endorsed in the Research Adoption Strategy and which form the basis for Outcome E3 are:

1. Aerial suppression
2. Prescribed burning
3. Protecting firefighters
4. Community safety and engagement.

## **Consultative process to develop the Framework**

Following on from the third year review in late 2006, the Bushfire CRC undertook a review of its projects and in early 2007 sought from all Project Leaders a revised project plan for the remainder of the Bushfire CRC which required Project Leaders to specify identified knowledge-transfer strategies and paths to adoption. A number of these plans included education and training strategies.

During 2007 the Education Manager and the Research Adoption Manager worked with Project Leaders to identify those research projects where outcomes were reaching maturity and where products were increasingly coming online.

Throughout 2008 significant research adoption work has been conducted, including a consultation researchers and industry on education and training pathways and opportunities. Part of this consultation sought advice from stakeholders on preferred types of education and training delivery approaches. In December 2008, Research Project Leaders and senior Bushfire CRC staff met and discussed how the required

outcomes for the remainder of the term of the Bushfire CRC would be achieved. This included reviewing the outcomes of the survey of stakeholders that formed part of the Education and Training consultation.

These activities have formed the basis of the Framework.

## **Aim of Education and Training Framework**

The aim of the Education and Training Framework is to support the four outcome themes endorsed in the Research Adoption Strategy by providing education and training activities and products that facilitate knowledge transfer of Bushfire CRC research outcomes to users. It achieves this through enabling education delivery as well as by building a 'library' of resources developed as part of the Bushfire CRC legacy.

## **Principles**

The following principles underpin the Framework. Education and training products will meet the following principles:

- Integrated. Delivery of education and training products will be in alignment with the agreed integrated research outcomes of aerial suppression, prescribed burning; protecting fire-fighters and community safety and engagement.
- End-user focussed. Stakeholders will be involved to confirm/build education products.
- Praxis. Theory will be integrated with practice (e.g. use of problem-based approaches) and aligned with other research adoption activities
- Continuity. Where appropriate, there will be multiple opportunities built into education, training and professional development activities to enable skill acquisition and development (eg follow-up of face to face delivery with web packages and encouragement of virtual communities of practice). There are a variety of pathways (discussed below) that will both stand-alone and provide developmental building blocks to achieve greater understanding and development of expertise.
- Strategic. Areas identified as high-impact for industry benefit will be prioritised.
- Equity. Where fees are charged, they will be for cost-recovery. Bushfire CRC members will have first access and where appropriate, discounted rates if delivery open to the broader public.
- Evidence-based. All activities will be evaluated.
- Legacy. All product delivery will include a strategy for storage, access and long-term availability of materials for later access. In some cases, the use of these will be embedded into developmental pathways. The AFAC Knowledge Web provides an avenue for this.

## ***Education and training delivery strategies***

The following education and training strategies were identified and included in the stakeholder consultation. They have been embellished here and can be characterised by the following activities, in order of increasing depth and complexity:

- **using research in professional development seminars and forums.** Seminars would include content that is typically delivered in expert-led type communication sessions. A forum is a more open-ended discussion, such as that seeking input from the audience on a particular topic. It is anticipated that seminars and forums are reasonably short in duration (e.g. 2-3 hours, or a half day, depending on the content).
- **combining theory and practice in professional development workshops.** A professional development workshop might be held for either half a day or a full day. It is anticipated that workshops will be highly interactive, enabling participants to process their new knowledge and apply it to their own contexts. In the case where workshops have been preceded by a seminar for forum on the same topic, it is anticipated that, in line with the principle of continuity, the seminar/forum materials will be made available to participants as pre-reading, thereby minimising the need for over-duplication.
- **developing specialist courses targeting specific areas.** The difference between professional development workshops and the specialist courses would be in breadth and depth of content and potentially the level of expertise in the targeted audience.

Developing specialist courses involves two pathways. It may involve working with existing education and training providers both within and external to the AFAC membership to embed research outcomes into **existing** courses of study and into the resources to support agencies in local delivery

It may also include developing informal non-accredited specialist courses where **no existing** accredited program currently exists (e.g. development of a national fire behaviour analyst course designed to meet the needs of a variety of end users). In doing so, the aim would be to work with existing providers to ultimately create such accreditation, should those stakeholders believe there is sufficient demand for these products.

The pathway to transition non-accredited courses into formal education and training is discussed below under “formally accredited education and training”.

- **Capability-development programs for enhancing trainer expertise.** The focus would be to work with existing **trainers** to inform them of the latest research findings and to work with them to develop strategies for how to embed the findings in their development and delivery of training. In this respect building trainer expertise can be seen as a bridge between specialist courses and embedding research into vocational qualifications and competencies.

- **Formally accredited education and training**

The education and training strategy will also seek to embed research outcomes into existing formally accredited education and training programs. It will do so by:

- **incorporating research into higher education courses.** Working with higher education providers to either embed research outcomes into relevant undergraduate and post-graduate programs, or to canvas the possibility of developing new courses in areas where there is currently an unmet need and an appropriate level of demand.
- **incorporating research into vocational qualifications/competencies.** Working with existing registered training providers (most notably AFAC and agency trainers) to embed the research outcomes into existing competencies and associated training programs.

These pathways are in alignment with the AFAC Knowledge Management Framework (see Figure 1). The Figure shows how activities such as those contained within the Framework are enablers to knowledge maturity as they act as a vehicle for moving knowledge known by a few to knowledge known by many, and in the process contributing to changes in work and organisational practices through research adoption.

#### **Media publications and products**

Each of the training strategies identified will be translated into products (i.e. video tapes, information sheets, training notes) arising from each of the education and training technology transfer strategies will be used to update current media publications, information booklets and learning resources. This will facilitate the transfer of information to end-users beyond those attending the sessions and will support information sharing on the AFAC Knowledge Web and in the AFAC Groups

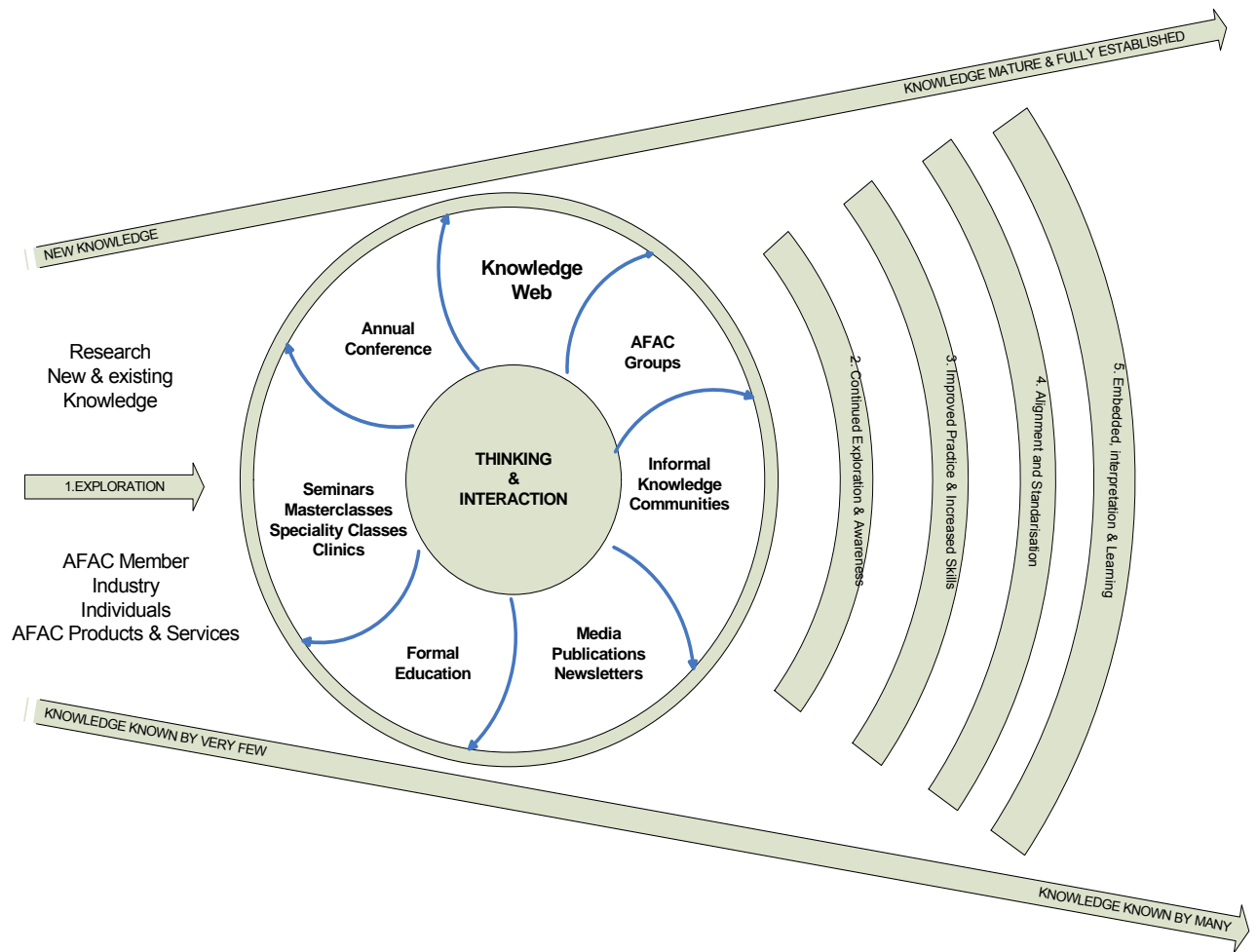


Figure 1: – Enabling Knowledge Maturity (AFAC, Dec 2008)<sup>1</sup>

<sup>1</sup> AFAC, Edwards, An approach to Knowledge Creation, V6, Dec 2008

## ***The Way Forward***

Based on the synthesis of consultations the following focus will be given to education and training activities for the remainder of the life of the Bushfire CRC.

The education and training activities discussed here may also be offered for delivery in agency-specific locations, provided the researchers are available and cost-recovery can be achieved through agreed minimum participation rates.

### **1. Determine researcher availability and appropriate resourcing needed to support the framework**

The first step, following endorsement of this Framework, is to assess researcher availability and to align research outcome content with industry need in order to manage expectations. Education and training personnel will facilitate, where appropriate, the delivery to ensure good products are developed and to ensure resources are developed in such a way that they can be added to the library (in keeping with principle of creating a legacy). The library on the AFAC Knowledge Web will form the repository of content delivered and also enable personnel who were unable to attend the face to face activity to access the content.

To this end the Bushfire CRC will:

- 1.1. consult with researchers targeted in the attached plan of education and training activity
- 1.2. develop under separate cover a budget to address the resourcing implications
- 1.3. establish the location of the library of resources and the resourcing needed for their development and maintenance.

### **2 Offer a variety of short-seminars and forums**

In the consultation process there were also content areas identified where seminars and forums of shorter duration were recommended.

To this end the Bushfire CRC will:

- 2.1. work with identified Program Leaders and industry stakeholders to develop and host nominated seminars and forums in relevant locations and formats

### **3 Develop targeted workshops and specialist courses**

It is proposed that, where those workshops and specialist courses need to be purpose built, this will occur initially as a non-accredited course of study. This will enable greater flexibility in design and provides the opportunity to test-bench the content and delivery.

Vocational education trainers and higher education personnel with an interest in taking the content into formally accredited courses will be invited to participate, providing an explicit connection and intention to embed the content within various qualifications.

This approach will be used to advance the areas identified as targeted for priority in integrated sub-themes.

Where there is a connection between the identified need for specialist course content and building trainer expertise, it is expected that trainers looking to build their expertise will attend the specialist course and then conduct a follow-up trainer-specific extension module.

To this end the Bushfire CRC will:

- 3.1 Work with agency stakeholders to identify where research outcomes can be embedded into existing courses. These research findings may be integrated into courses for generalist personnel as well as for specialist personnel
- 3.2 Use existing AFAC groups or where more appropriate convene small end-user groups to work with researchers to develop courses of study to meet identified need.
- 3.3 Identify representatives of formal education and training providers with an interest in the content and invite them to be part of the development process and to determine a transition strategy (see below).

#### **4 Focus on building trainer expertise in agencies**

In accordance with advice received in the consultation process, the major plank of the strategy will be building trainer expertise.

This provides a pathway for building capacity within those agencies. The **strategy will commence** with building capacity through developing targeted professional development workshops and creating specialist courses (or value-adding to existing ones), and in the process drawing together researchers, agency specialists and trainers.

Through the consultation process there were two integrated areas where building knowledge of trainers was given a high priority. These were in the areas of *Fire behaviour, weather and fuel systems*; and in *Protecting fire-fighters*.

To this end the Bushfire CRC will:

- 4.1 Work with AFAC Learning and Development to develop this strategy for building trainer expertise.
- 4.2 Develop a calendar of events, and within it, a sequential developmental pathway of enabling activity through: seminars/forums →workshops →specialist courses → building trainer expertise.

4.3 Work with stakeholders to ensure the appropriate people are targeted.

## **5. Work with higher education and training providers to embed content in existing courses**

There are also areas that were identified through the consultation specifically for inclusion in vocational education and training programs as well as higher education.

To this end the Bushfire CRC will canvas interest from Bushfire CRC higher education member institutions and VET providers to:

- 5.1. Work with researchers to embed research content into existing relevant formally accredited education and training programs
- 5.2. Facilitate a workshop between end-user representatives and higher education providers to canvas demand and interest levels in encouraging those higher education providers to develop cross-institutional collaborative teaching models.
- 5.3. Work with AFAC Learning and Development to facilitate a curriculum mapping exercise to identify where identified research outcomes could be appropriately embedded in existing VET training packages
  - Facilitate researcher contact with identified VET nominated representatives tasked with updating training resources
  - Ensure working groups tasked with advising on the development of education and training products discussed in this Framework include nominated L&D representatives who will be responsible to create a bridge to existing VET products

### ***The Plan***

A calendar of planned activities will be available on the Bushfire CRC web and the AFAC Knowledge web.

The activities outlined in the table (refer to executive summary) aligns with the four outcome themes endorsed in the Research Adoption Strategy. These are;

- Aerial Suppression;
- Prescribed Burning;
- Protecting Fire Fighters; and
- Community Safety and Engagement.

Some education and training activities span two or more of the integrated outcomes. The education and training activities within each of the integrated thematic outcomes are in order of increasing depth of knowledge. It is our intention that each type of activity can stand alone (i.e., agencies may send personnel to attend a seminar or a workshop or a specialist course). However it will also be important to value-add to participation. That is, if personnel decide to attend seminars and then a workshop and then attend a specialist course then the knowledge gained will add-value and there is minimal duplication and overlap.