The Predictions in Public Project:

Evidence-based principles for communicating predictions to the public during an emergency

Reflections on Research Impact

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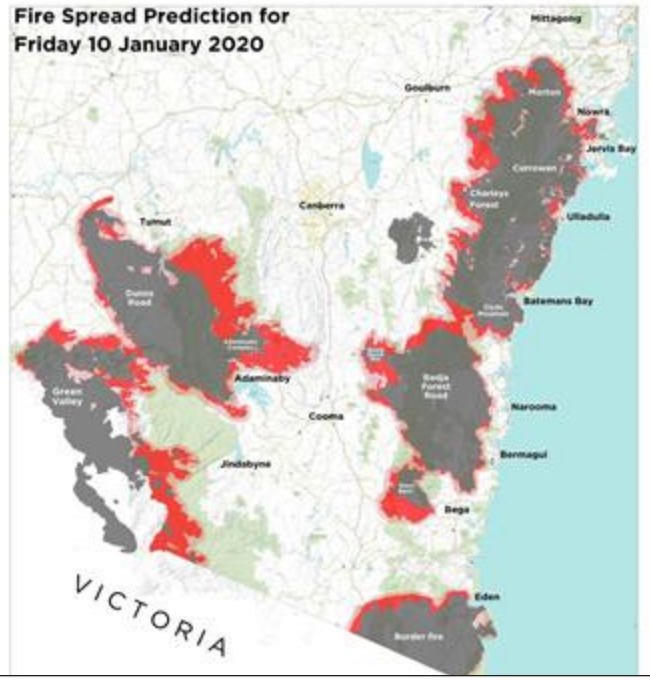
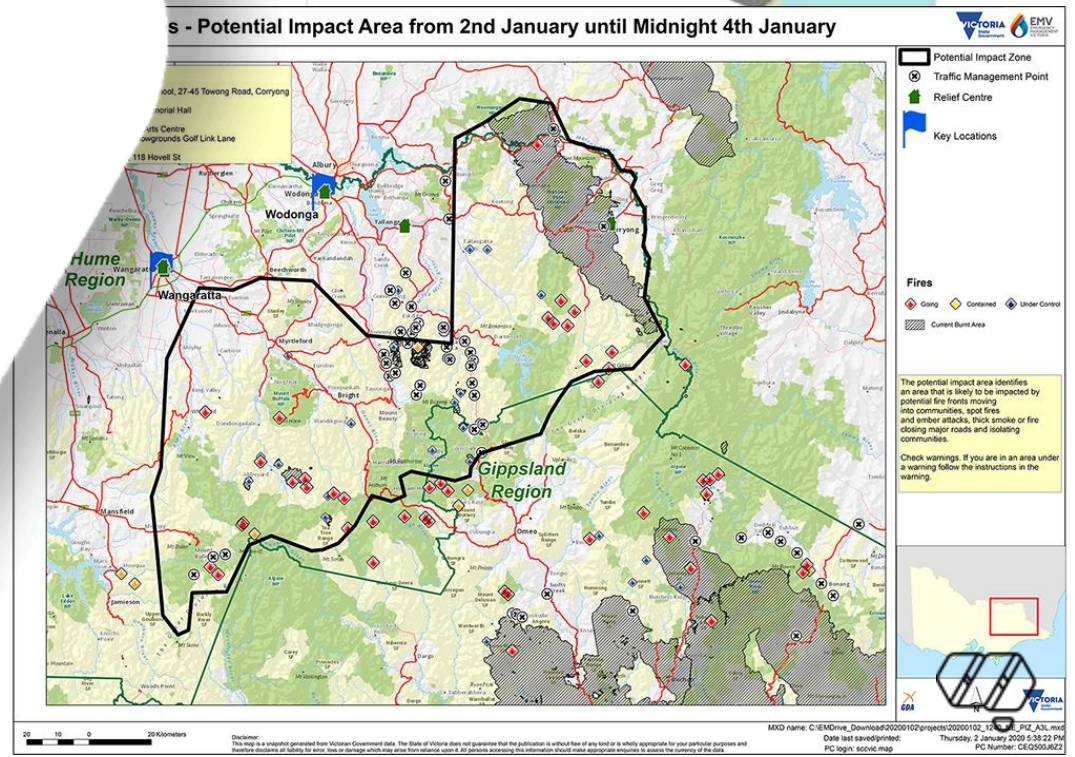
Predictions in Public: Background

- Technological advancements
- Expectations from the public
- Recommendations from reviews, inquiries, and royal commissions
- Political pressure
- Previous research in Victoria:
  - Support for use of predictions in public
  - Concerns for how to embed predictions into existing warning products and when and how to release them.





Project Aims:

- To use **empirical evidence** and **collaborative processes** to contribute to the develop of **national evidence-based guidance** for the future use of public-facing predictive fire spread products during an emergency.

Project Stakeholders

Project team

- Chloe Begg (CFA)
- Angela Gardner (EMV)
- Paula Dootson
- Amy Griffin &
  Erica Kuligowski (RMIT)
- Timothy Neale (Deakin University)

Project Steering Committee:

Representatives from **AFAC PSG** and **AFAC WG** from each Australian jurisdiction.

- **TAS** - Mark Chladil (PSG) and Heather Stewart (previously Peter Middleton) (WG)
- **WA** - Jackson Parker (PSG) and Anni Fordham/Deana Pullella/TimVella (WG)
- **QLD** - Moo Price (previously Jack Emueleus) (PSG) Jennifer Kerr (previously Alex Battye and Anna Grohn) (WG)
- **NSW** - Laurence McCoy/David Field (PSG) and Ben Shepherd (previously Anthony Clarke) (WG)
- **VIC** - Chris Morton (previously Phillip Brien and Alice Gower) (PSG) and Reegan Key/Marc Unsworth/Peter Wall (WG)
- **ACT**- Ailish Milner/Ryan Lawrey (PSG) and Leighton Bush (previously James Morris) (WG)
- **SA** - Simeon Telfer (previously Mike Wouters) (PSG) and Monique De Silva (WG)
- **NT** - Don MacCorquodale (previously Akshy Athukorala)
- **BOM** - Vikki Heinrich (previously Fiona Dunstan)

Project Design

Phase 1:

Understanding current agency practice and community comprehension and use of existing public-facing map-based products (i.e., incident warning maps and fire spread prediction maps).

Phase 2:

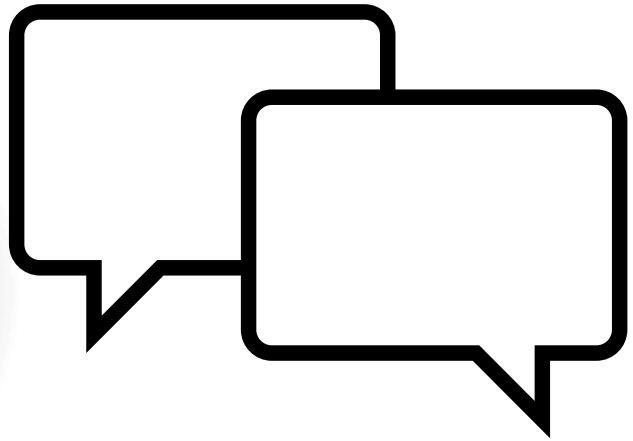
Developing and community testing of public-facing fire spread prediction map concepts.

Phase 3:

Developing practical outputs for agency use.

How the research has been used?

Request from EMV public information staff for a project brief on using predictions in public over the 2024/2025 fire season for EM Communication.



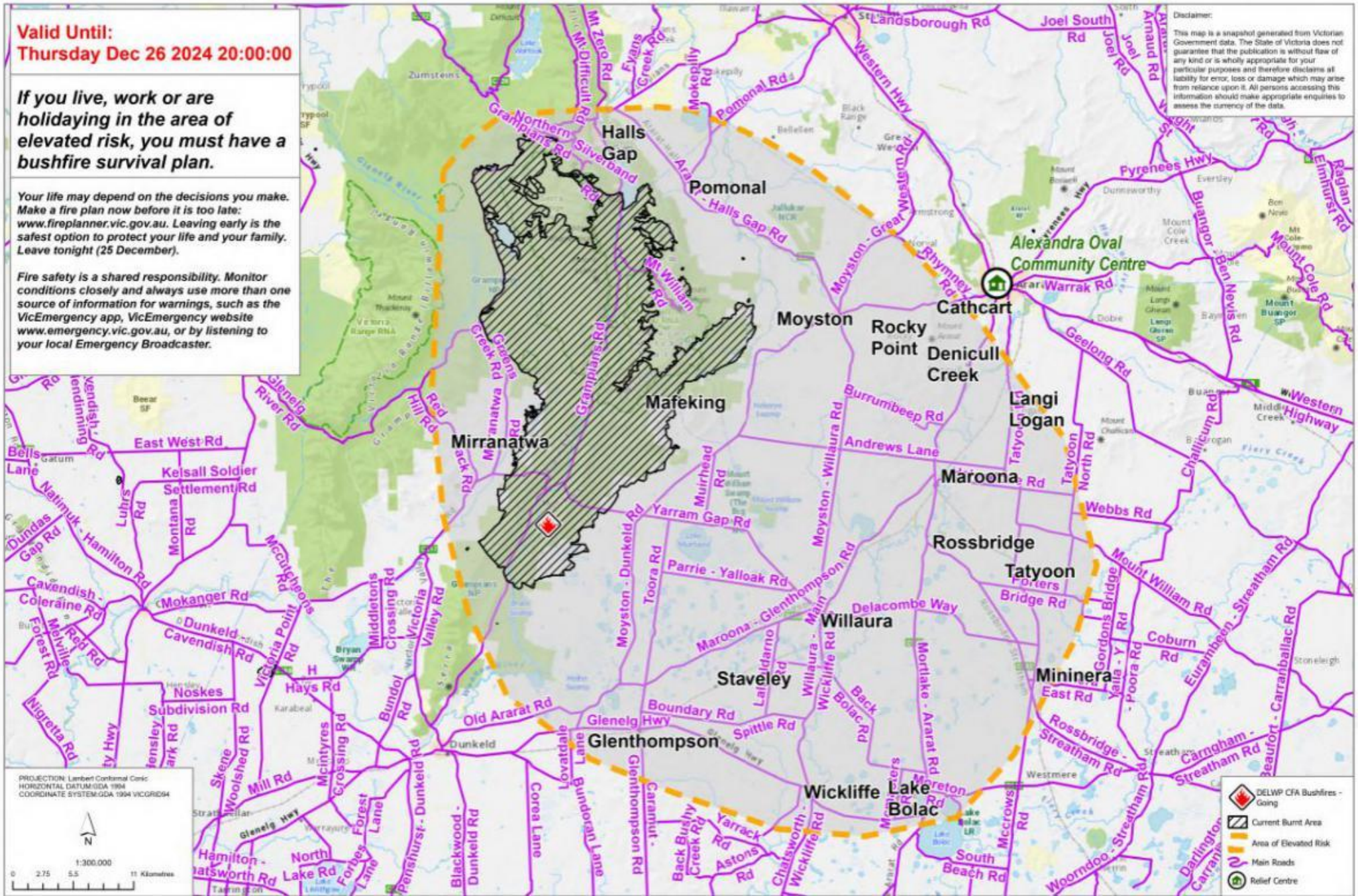
How the research has been used

PiP team provided guidance on design elements. For example:

- ***Directionality of the hazard and related info:*** The current location of the fire, including the fire front; wind speed and direction.
- ***Routes:*** Traffic information and road closures, including detailed information such as in- and out-bound traffic impacts.
- ***Timing:*** The time of the last update and/or expiry time for the map and how often the maps will update.
- ***Landmarks:*** Information to assist people with self-localisation (e.g., city/town names, names of landmarks, topographic information, parks, road names, etc.), evacuation options and safe refuge locations.

Evidence-Based Design Principle	What we know (research findings to date)	Current gaps (ongoing research)
Clear triggers for predictive map production, dissemination and updates	***Do predictions add value to current practice?*** • **Yes**. Incident warning maps are important but are not meeting the information needs and expectations of the public. While incident maps tell people what to do, **prediction maps provide additional information and context to support the incident warning maps**. ***Triggers: When should predictions be produced and updated?*** • Predictions should be **produced** when there is reasonable concern for public safety within the next 12-24 hours. • Community members expressed an expectation that predictions would be **updated** when the incident, risk, or weather forecast changes significantly. Currentness should be included in a disclaimer (i.e., valid from and until). Once the time of validity has passed, an updated prediction map or message about the status of the event should be communicated to the public to avoid confusion regarding the status of the event. • Predictions should be **timely** to ensure people within the predicted impact area have reasonable time to take appropriate protective actions; this should be considered when producing and updating predictions.	The scenario(s) we have tested have been quite similar (based on a WA example); ongoing research will consider how we can incorporate a range of scenarios, noting the challenge.
Predictive map design	Communities would value receiving the following additional information during an emergency: • ***Directionality of the hazard and related info:*** The current location of the fire, including the fire front; wind speed and direction. • ***Routes:*** Traffic information and road closures, including detailed information such as in- and out-bound traffic impacts. • ***Timing:*** The time of the last update and/or expiry time for the map and how often the maps will update. • ***Landmarks:*** Information to assist people with self-localisation (e.g., city/town names, names of landmarks, topographic information, parks, road names, etc.), evacuation options and safe refuge locations. If information isn't provided, there is a risk of people looking for it elsewhere and filling in the gaps, potentially making incorrect conclusions about the event and what to do.	The project is currently testing maps which include the requested information from communities in the design of predictions. This will provide more clarity about **the implications of including this information for community risk understanding and protective actions**. **Prediction time frames appear to have an impact on how communities are perceiving the risk** associated with the event. Research is ongoing to better understand best practice in order to potentially link specific time frames with risk perception and response (e.g., research will test single isochrones, multiple isochrones and an ensemble prediction).
Communicating uncertainty	Community members understand the inherent uncertainty of weather and bushfires. However, people located just outside of the isochrone or warning polygon can feel "relieved" about their risk. Therefore, prediction maps should be released with text acknowledging the map's **uncertainty**, when it will be **updated**, where to access more **information**, and direct people to the **incident warning maps**.	Testing with CALD groups and for accessibility to ensure maps meet the needs of broader audiences.

Grampians Fire - Area of Elevated Risk - 16:37hrs 25 Dec 2024



What did we learn?

Briefing conversations were conducted with FBAn and PIO roles involved in the production of the Elevated Area of Risk maps to capture and learn from their experience.

- **Implications for EMV:**
  - Provided guidance on design elements of the map.
  - Being part of the research project group was invaluable to aid creating the maps.

- **Implications for the Predictions in Public project:**
  - Discussions/lesson sharing with the broader project Steering Committee.
  - Updates to Evidence-Based Principles.
  - Considerations for future research and outputs within the project.

Topic	What we know (PiP research findings to date)	Considerations based on de-brief on Christmas 2025 Elevated Areas of Risk Maps

Clear triggers for predictive map production, dissemination and updates	***Do predictions add value to current practice?***
	• **Yes**. Incident warning maps are important but are not meeting the information needs and expectations of the public. While incident maps tell people what to do, **prediction maps provide additional information and context to support the incident warning maps**.
	Triggers: When should predictions be produced and updated?
	• Predictions should be **produced** when there is reasonable concern for public safety within the next 12-24 hours.
	• Community members expressed an expectation that predictions would be **updated** when the incident, risk, or weather forecast changes significantly. Currentness should be included in a disclaimer (i.e., valid from and until). Once the time of validity has passed, an updated prediction map or message about the status of the event should be communicated to the public to avoid confusion regarding the status of the event.
	• Predictions should be **timely** to ensure people within the predicted impact area have reasonable time to take recommended protective actions; this should be considered when producing and updating predictions.
		• Support for **triggers** identified in the research (see column to the left).
		• Recommendation for predictions to have a **clear and shared objective/key message** (i.e., leave early, enact bushfire plan, be aware/prepared, etc.) to assist in decisions related to the design of the map and accompanying messaging.
		• Do other circumstances outside of fire response warrant the extra level of information to be provided?
		  ○ road network complications like limited access that is out of ordinary to normal circumstances
		  ○ special events or celebrations like Christmas where there are more people in locations that are out of normal home locations or increased travel or ability to leave if circumstances change.
		• **Timeliness:** Consider when the map needs to be produced by to ensure that they are disseminated across appropriate channels in a timely manner (i.e., press conference, social media, community meetings, etc.).
		• **Consider the timing of the weather data updates.** To ensure the map is using the most up to date information, consider producing the map in line with the timing of the BoM weather updates and other intel relevant to fire behaviour.
		• Consider whether VicEmergency's "Plan and Prepare" tab is an appropriate place to publish the map.
		• Communication strategy for dissemination considering state and local media

Thank you

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