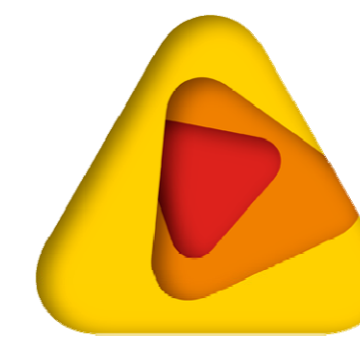


# GAINING BENEFITS FROM ADVERSITY: STANDARDISING DATA OBTAINED FROM BUSHFIRES



bushfire&natural  
**HAZARDS**CRC

Alex Filkov, Tom Duff, Trent Penman

School of Ecosystem and Forest Sciences, University of Melbourne, Victoria

**THE LIMITED AVAILABILITY OF HIGH QUALITY DATA ABOUT BUSHFIRES RESTRICTS THE RATE AT WHICH RESEARCH CAN ADVANCE. HERE WE ARGUE FOR A MINIMUM STANDARD OF DATA COLLECTION FROM EVERY BUSHFIRE EVENT TO ENHANCE THE ADVANCEMENT OF FIRE BEHAVIOUR RESEARCH AND MAKE RESEARCH FINDINGS MORE INTERNATIONALLY RELEVANT.**

## AIMS

A challenge to improving our understanding of bushfires is the limited amount of information available as they are rare, rapid and dangerous. Our aim is to improve and standardise the information collected during fires. The first step is to understand what data is currently being collected. To do this we approached representatives from all fire and land management agencies in Australia. Specifically, we asked:

- What information is being collected and stored during fires?;
- How frequently is the data collected?; and
- Does this information collection vary between fires that occur under different conditions?

## DATA COLLECTION IN AUSTRALIA

We achieved this by sending surveys to agency representatives. We analysed responses to determine the nature of information typically collected at fires. We used these to make recommendations on how data collection may be improved. In doing this, we also considered novel technologies that may supplement current approaches. While we focused primarily on Australian agencies, the recommendations are relevant for agencies worldwide.

Responses were received from ACT, NSW, VIC, QLD, SA and WA. No responses were received from Tasmania and the NT.

We found that data types that are more complex to collect (such as fire perimeters) or have technological requirements (such as FLIR) are collected in fewer states. More detailed data is collected for larger fires – generally those that occur under extreme weather.

When asked what kind of data should be collected routinely in the future, almost all interviewees noted that it would be ideal to start recording fire behaviour, weather radar and local weather (Figure c).

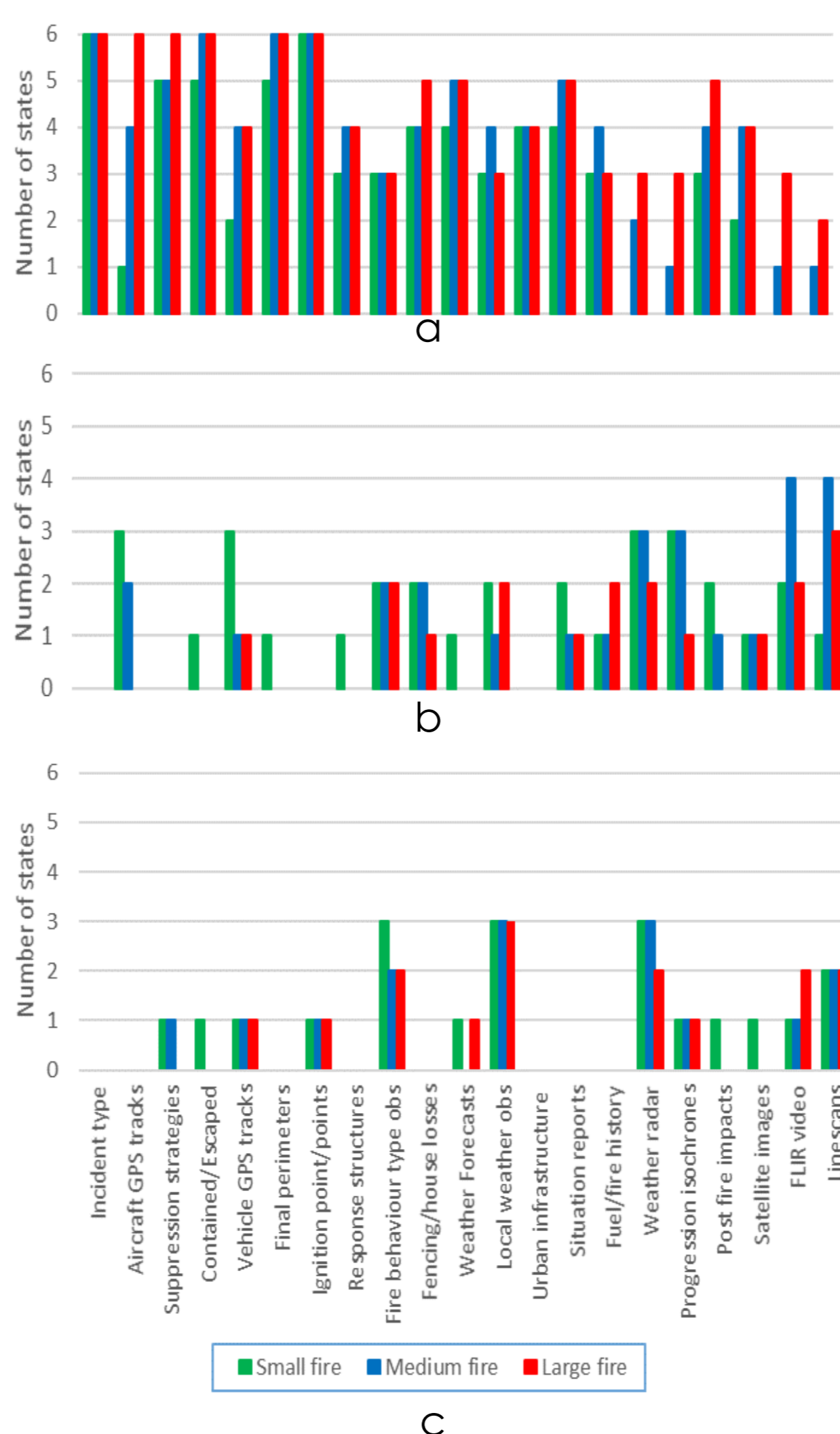


Figure - Data collection results: a – collect routinely, b – collect occasionally, c – should be collected routinely

From our surveys, we also identified that there is a high degree of variation in the way data is curated. Databases are not shared between states and rarely between agencies within the same state. Some centralisation of information is likely to be beneficial.

## INNOVATION IN DATA COLLECTION

There are a wide range of sources of information in relation to fires, however, as a starting point we recommend a focus on particular categories:

- Ground observations and operational information;
- Linescans;
- Forward Looking IR;
- Aerial observers;
- Satellites;
- Remote weather observations
- UAV observations;
- Vehicle/aircraft GPS tracks; and
- suppression strategies.

These have the potential to provide detailed information in relation to all types of fires, but importantly should improve our observations of extreme fire behaviour – the phenomena that only occur at large scales and under severe conditions that cannot be safely replicated experimentally.

## SUMMARY

Land and emergency response organisations are increasingly being expected to deliver scientifically defensible decisions and to demonstrate continuous improvement in management and resource use. Improvement of data collection will provide leverage on data collected and allow robust conclusions to be reached sooner and with less expense. This would assist with improving fire management systems and processes in use today.

## CONTACT DETAILS

Alex Filkov  
T: +61 3 5321 4198  
M: 0426 275 273  
E: alexander.filkov@unimelb.edu.au

