

Improving the science

- The current Fire Danger Rating System is largely based on science that is more than 60 years old.
- The current system is still useful, but its limitations are well understood. New technology and research have greatly improved our ability to accurately predict fire behaviour and the potential threat to the community.
- The AFDRS uses the latest scientific understanding about weather, fuel and how fire behaves in different types of vegetation to improve the reliability of fire danger forecasts. This strengthens the ability of those working in emergency services to be better prepared, make improved decisions and provide better advice to the community.
- The new fire danger rating system is designed to be continuously updatable so that the system can take advantage of improving science, data and information into the future.
- Because the AFDRS makes better fire danger predictions; government, the community and industry can have greater confidence in the information and advice provided.

- New research has greatly improved our ability to more accurately predict fire behaviour and the potential threat to the community. For example, new fire behaviour models that indicate how a fire is likely to behave are now available for a much wider range of Australian vegetation types than in the past. Another example is that the current system has certain known limitations especially in its ability to account for worst-case fire conditions.
- Because of the way that fire danger calculations are embedded into the current system, it has no means by which to take advantage of improved science, data and technology. The AFDRS is designed to be continuously updatable with the latest scientific understandings.
- Following the Victorian Black Saturday bushfires in February 2009, changes were made to fire danger ratings including the introduction of a 'Catastrophic' (or 'Code Red' in Victoria) rating and changes to the indices for grassland areas. While these changes were successfully and rapidly implemented to address a need at the time, experience has shown the original system has been manipulated beyond its original intent and required a comprehensive review and redevelopment.
- In July 2014, senior officers and ministers agreed that the development of a new fire danger rating system is a national priority, and that it ought to be based on updated science and take advantage of decades of research, improved forecasting, additional and improved fire behaviour models, and better spatial and weather data.
- A prototype of the AFDRS was developed by the NSW Rural Fire Service. Testing it against real-world fires demonstrated improved fire danger forecasts. The prototype also demonstrated that a system could be designed to allow it to be readily updated as research into fire behaviour and other information improved.
- Phase three of the AFDRS program is now underway and includes development and implementation of the new system, scheduled for rollout in 2022. It also includes the development of prototype indices for bushfire impact, suppression likelihood and ignition likelihood that may become important additions to the system in the future.

This is a national program funded by the Commonwealth and all the States and Territories and delivered by local implementation teams. The AFDRS is being coordinated by NSW RFS and AFAC (Australasian Fire and Emergency Services Authorities Council), with support from the Bureau of Meteorology. A National Program Board, with representation from each of the State and Territories' fire agencies, is overseeing the program.