Key points

- Updated mapping information showing the Bushfire Hazard Area (or Bushfire Prone Area) in Queensland is now available for use by local governments when preparing or amending planning schemes.
- The mapping includes new information on the extent of remnant and non-remnant bushfire prone vegetation, and improved estimates of potential fuel loads for different regional ecosystems.
- The mapping can also help local governments, rural fire brigades, or other land management agencies to develop plans for mitigating the potential impacts of bushfires.

What is a Bushfire Prone Area?

Bushfires can be potentially harmful to people and property, especially under severe fire weather conditions and in areas of steep topography where vegetation has not been managed to reduce fuel load.

A Bushfire Prone Area (which has identical meaning to a Bushfire Hazard Area under Queensland’s State Planning Policy) identifies land that is likely to support a significant bushfire and could be subject to impacts from a significant bushfire.

Under the State Planning Policy, Local Government planning schemes must identify a Bushfire Prone Area in order to avoid or mitigate the risk of bushfires, protect people and property, and enhance the community’s resilience to bushfires (see http://www.dsdip.qld.gov.au/resources/policy/state-planning/state-planning-policy-jul-2014.pdf page 35).

What information is included in this release?

Updated State-wide mapping of the Bushfire Hazard Area (or Bushfire Prone Area) is now available for use by local governments when they prepare or update a planning scheme, and for interim development assessment purposes as described in Queensland’s State Planning Policy (SPP).

This updated mapping includes recent information on the extent of remnant and non-remnant bushfire prone vegetation, and improved estimates of potential fuel loads for different regional ecosystems. The mapping shows areas with a Very high, High or Medium Potential Bushfire Intensity and land within a Potential Impact Buffer of 100m.
How were these maps produced?

State-wide Bushfire Prone Area Mapping is produced by combining map information on three factors that determine the potential intensity of a bushfire: A. Potential fire weather severity, B. Landscape slope and C. potential fuel load.

A. Potential fire weather severity maps indicate the regional variation across Queensland of a particularly hot, dry and windy day with little preceding rainfall. The map shows that coastal locations in Queensland, especially South-east Queensland and the Wet Tropics, experience severe fire weather less often than western parts of the state. Fire weather severity maps developed for Queensland by CSIRO are based on the McArthur (1973) Forest Fire Danger Index – which is used by most fire agencies in Australia. These maps depict a Forest Fire Danger Index that is expected to be exceeded about once every 20 years, with a 5% chance of being exceeded in any single year. While more severe fire weather events are possible, these weather conditions are considered suitable for setting the level of bushfire risk mitigation measures to be undertaken through land use planning.

B. Landscape slope maps indicate the local variation in maximum slope at a resolution of 25m for Queensland. These maps were developed for Queensland by CSIRO from global land surface heights recorded during the February 2000 Shuttle Radar Topographic Mission. This slope mapping is well suited to landscape scale modelling of Potential Fire-line Intensity under higher levels of Fire Weather Severity and provides complete state wide coverage that is not available from higher resolution airborne LiDAR.
C. Potential fuel load maps indicate the weight per hectare of readily combustible fuel that would accumulate in a particular vegetation community if it was not burnt or other efforts were not made to reduce the depth or cover of fuel. Expert estimates of fuel load parameters and available field data for different vegetation hazard classes are used to estimate potential fuel loads for each vegetation class. Vegetation hazard class mapping is formed by combining Regional Ecosystem mapping and Foliage Projective Cover mapping and other satellite-based mapping data provided by the Queensland Department of Science, Information Technology and the Arts. A total of 116 Vegetation Hazard Classes are now recognised with Potential Fuel Loads of between 35 tonnes per hectare in tall, open, wet eucalypt forest, and 0 tonnes per hectare for permanent water bodies.

D. Potential Fire-line Intensity is a useful indicator of the difficulty of fire suppression and the risks to people and property in the vicinity of a severe bushfire due to flame attack, radiant heat exposure and ember attack. It is calculated for each 25m map cell by combing estimates of potential fire weather severity, landscape slope and potential fuel load, using formulae derived from established fire behaviour models.

E. The final Bushfire Prone Area map is generated from potential fire-line intensity mapping by removing areas that do not meet a minimum potential fire-line intensity threshold, removing small and disconnected patches of vegetation that are less likely to be ignited or would not sustain a severe bushfire, adding a potential impact buffer, and smoothing map data to replicate naturally occurring boundaries.

While pastures, crops and native grasslands often experience fast moving fires, their intensity is usually insufficient to justify a land use planning response. The Bushfire Prone Area also excludes forest types that will rarely or never carry a bushfire, even under severe fire weather conditions such as mangroves or rainforests. The Potential Impact Buffer, with a default width of 100m, identifies land which may be subject to severe flame, radiant heat or ember attack. The final analysis involves the conversion of 25m square cells boundaries to a smoothed edge vector GIS product that can be used in most computer mapping systems.

Full details on the methodology used to generate bushfire prone areas in Queensland are available from the 2014 CSIRO report: https://data.qld.gov.au/dataset/bushfire-hazard-area-bushfire-prone-area-mapping-methodology-for-queensland

How can the mapping information be accessed?

Bushfire Prone Area mapping data can be accessed from:

What are the main benefits of the new approach?

The principal strength of this mapping approach is its ability to confidently determine the relative level of potential bushfire hazard from up-to-date spatial information. This approach will lead to greater certainty, fewer unnecessary delays and better planning outcomes for Queensland communities.

*Development of the mapping methodology and updated mapping products has been funded by the Queensland and Australian Governments through the Natural Disaster Resilience Program.*

This methodology was also designed to overcome limitations with the mapping approach described in Queensland’s previous State Planning Policy 1/03: *Mitigating the Adverse Impacts of Flooding, Bushfires and Landslides*. Some of these limitations include the absence of an explicit link to Queensland’s system of regional ecosystem mapping, its inability to account for regional variations in fire weather severity, and its limited ability to predict the likely potential fire intensity at a location. The SPP 1/03 methodology also placed inappropriate emphasis on the drying effect of topographic aspect.

The new mapping method provides a science-based prediction of likely bushfire intensity, is grounded in field-based estimates of potential fuel load and allows for continual improvement.

How can the new mapping be used for bushfire mitigation planning?

Queensland’s State Planning Policy recognises that land use planning provisions are one component of an integrated disaster management strategy. Land use planning provisions are required to work in conjunction with other risk management measures including building controls, mitigation infrastructure, early warning systems, community awareness and disaster management. Bushfire Prone Area mapping can help local governments, rural fire brigades, or other land management agencies to identify locations that have the potential to be threatened from severe bushfires, and develop plans for mitigating the potential impacts of future bushfires. For further information go to [https://ruralfire.qld.gov.au/index.asp](https://ruralfire.qld.gov.au/index.asp).

What if you live or work in a Bushfire Prone Area?

If you live or work in or near a Bushfire Prone Area, it is recommended that you have a Bushfire Survival Plan. Your bushfire survival plan details how you will prepare— and what action you will take – if threatened by a bushfire. During a large-scale event, the Queensland Fire and Emergency Services (QFES) will not be able to place a fire truck at every property so it is important to have a Bushfire Survival Plan in place. Details on how to prepare your bushfire survival plan are located at [https://ruralfire.qld.gov.au/Fire_Safety_and_You/Bushfire_Survival_Plan/](https://ruralfire.qld.gov.au/Fire_Safety_and_You/Bushfire_Survival_Plan/), or contact your regional Rural Fire Service office. Contact details can be found at [https://ruralfire.qld.gov.au/contactUs.html](https://ruralfire.qld.gov.au/contactUs.html).

When are future updates planned?

An update of Bushfire Prone Area mapping is planned for early 2015 to address known limitations and any subsequent adjustments identified by Local Governments, State agencies or other organisations. Priority improvements recognised to date include the revision of fuel load estimates for sedgeland, and mixed vegetation types (such as rainforest and sclerophyll communities). Local governments or other organisations can provide feedback about the mapping by referring to guidance on how to undertake a reliability assessment - available from: [http://dds.information.qld.gov.au/DDS/Search.aspx](http://dds.information.qld.gov.au/DDS/Search.aspx). Search for “bushfire hazard”.

Who can be contacted for further information?

If you need assistance on how to access mapping information, contact the Public Safety Business Agency GIS Unit at the following email address [QFRSGISUnit@dcs.qld.gov.au](mailto:QFRSGISUnit@dcs.qld.gov.au).