Mobile bushfire warnings

Fire is a “normal” part of our environment. Much of our native species depend on fire for re-generation, however wildfires can be destructive to the natural and agricultural landscape.

Monitoring fires is vital for managing risks.

Desert Channels Queensland (DCQ) have been demonstrating the Bushfire.io app as part of the *Maps and apps* disaster preparedness workshops.

Decoding smoke signals

There’s nothing worse than the smell of smoke and dark plumes in the distance. Is it a planned/monitored burn or a wildfire? The Bushfire.io app provides an intuitive tool to check if the incident has been logged with the relevant fire agency, whether it was planned and if appliances are on the way or onsite.

In the example below, a landholder saw smoke in the distance at 1:30pm. With no alerts from Bushfire.io (i.e. no planned burns) the landholder initiated their bushfire response plan. By 3pm the fire had grown significantly, however because the landholder initiated their response plan early, the fire was contained by 6pm. The extent of the fire was much smaller than shown however the smoke still appeared in the hotspots map.

This program is jointly funded through the Australian Government’s Future Drought Fund and the Queensland Government’s Drought and Climate Adaptation Program.

Australian Government | Future Drought Fund | Drought and Climate Adaptation Program | Queensland Government | desert channels QUEENSLAND

Background

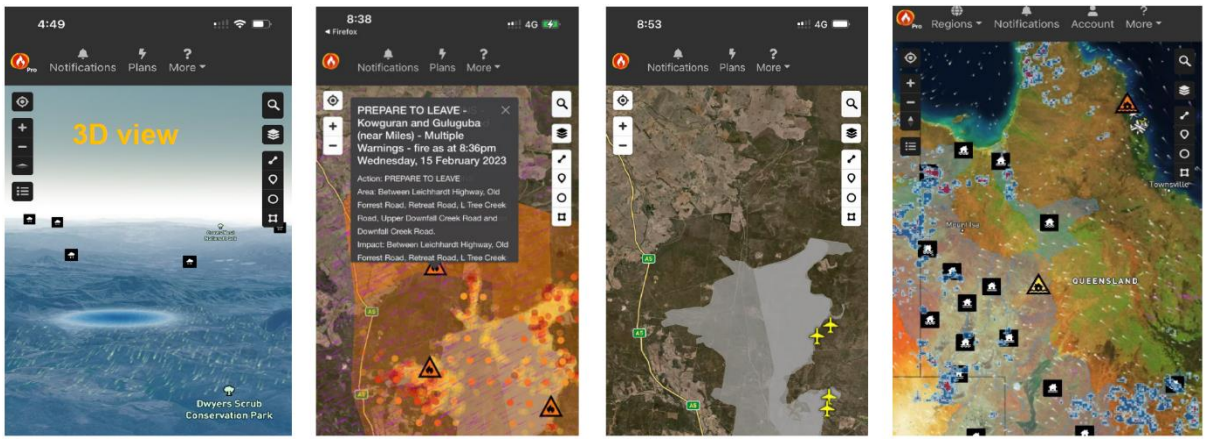
The Bushfire.io app provides up-to-date warnings and notifications direct to mobile device, including fire weather warning and fire danger ratings.

Individuals and communities can access most features, but the real value comes from the Pro services (cost of around $3.99AUD / month). The app brings together many data streams and is designed to be mobile user friendly.

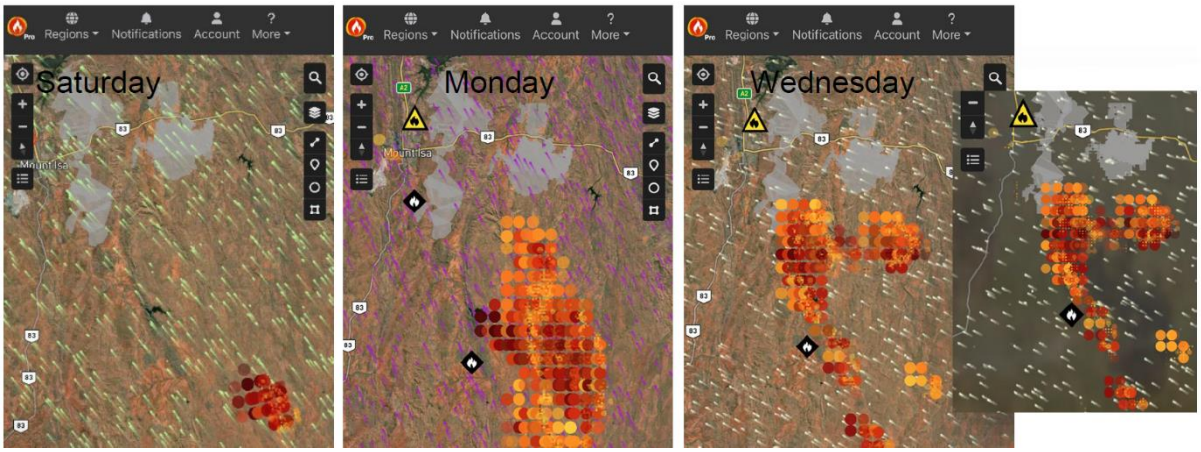
Key features of the Bushfire.io app	**Free**	**Pro (paid version)**
Polygon notifications Custom create alerts for brigade area or property safety zone.	5 notifications Free users have access to push 75 km radius or larger available in the app.	25 different notifications can be set up for bushfires, flooding, severe weather. Push + SMS and can use polygons (to select an entire state or custom region).
Detected hotspots Note: Smoke clouds, industrial/mining areas and solar farms can appear as hotspots.	10 minute / 2 km resolution from the Himawari 9 Satellite; 2 hour, 375 m resolution NOAA-20, Suomi NPP (smaller, lower temperature fires) used to detect and report hotspot temperatures.	The time machine feature indicates if it is always hot. They are likely only accurate to +2 km at best.
Lightning strikes	NA	Area of increased fire potential.
SMS warnings	NA	Critical updates texted, including real-time evacuation orders, road closures etc.
Time machine	NA	Rewind up to a month (in hourly increments) to check where a fire started, conditions, which areas were previously impacts, when a road was closed etc.
Wind	30 km, 3 hourly	Hourly, 6 km high resolution. **3D wind and terrain** can be used to visualise how geography affects fire spread, slide two fingers down/up the screen to change the viewing angle.
Near real time imagery	NA	The operating resolution is up to 500 m/pixel, this means a fire usually must be greater than 500 m to be visible. Updates every 10 minutes. Switch between natural colour images, false colour to highlight clouds,

Key features of the Bushfire.io app	Free	Pro (paid version)
		cloud temperatures (to spot rain or storms) and land temperature (helpful for identifying bushfires).
Emergency response aircraft tracking	via Flightradar24 global service	via Flightradar24 global service

The app includes different viewing modes such as 3-dimensional, interactive view of wind, warnings and lightning (blue section on the left image). A view of hotspot proximity to containment lines, air resources and burn area (grey), remote situational awareness (flooding warnings and lightning across the state on right).



On the images below are hotspots from a large remote fire south of Mount Isa. The inset image shows best available, recently burnt areas. Last summer's burnt areas are shown in grey.



Mobile tools and near-real time information can help plan fieldwork, avoiding closed roads and high winds (for our drones). This app helps with weather information to:

- Provide near real-time warnings about severe weather events and hazards
- Help make sure teams are safe and equipped to make informed decisions
- Share warnings can save lives and prevent property and environmental damage.

Information on other resources

This isn't the only tool available. The following resources are also useful when working from a laptop or table screen:

- North Australia and Rangelands Fire Information: https://www.firenorth.org.au/nafi3/
- Queensland Fire Department current bushfire warnings and incidents: https://www.fire.qld.gov.au/Current-Incidents
- FORAGE – Long-term carrying capacity to assist with recovery: https://longpaddock.qld.gov.au/
- Early Warning Network, an SMS based warning system based on local government areas: https://www.earlywarningnetwork.com.au/
- Digital Earth Australia Hotspots map: https://hotspots.dea.ga.gov.au/

This document prepared by Desert Channels Queensland, as part of the *Maps and apps for grazing land management* series, October 2024.