



QUICK GUIDE

RESEARCH PAPER SERIES, 2019–20

12 MARCH 2020

2019–20 Australian bushfires—frequently asked questions: a quick guide

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This quick guide aims to answer some of the frequently asked questions relating to the 2019–20 Australian bushfire season that started in September 2019. Although the major fires are now considered extinguished and the bushfire season is drawing to a close, some of the information outlined below may still be subject to change. Similarly, some of the information is by necessity an estimate, or sourced from media reporting, the accuracy of which has not been verified.

How many people died?

On 4 February 2020 Prime Minister Scott Morrison confirmed in a speech to Parliament that [33 people died as a result of the 2019–20 bushfires](#). In a speech to Parliament on the same day, [Senator Larissa Waters named the 23 people who had so far been identified](#), listed here in alphabetical order, as:

Fred Becker	Mat Kavanagh	Sam McPaul	Patrick Salway
Vivian Chaplain	Geoffrey Keaton	David Moresi	Robert Salway
Rick A DeMorgan Jr	Clayton Lang	George Nole	Chris Savva
Julie Fletcher	Dick Lang	Andrew O’Dwyer	Ron Selth
Paul Clyde Hudson	Bob Lindsey	Barry Parsons	Bill Slade
Gwen Hyde	Ian McBeth	Mick Roberts	

In a speech to the NSW Parliament on 6 February 2020, [NSW Member of Parliament, Greg Piper, was one of several MPs who named another nine people who died](#) (listed below in alphabetical order), and acknowledged a 56-year-old man who died in the Cobargo fire but was yet to be formally identified:

Laurie Andrew	John Butler	David Harrison
Russell Bratby	Michael Campbell	Ross Rixon
Colin Burns	Michael Clarke	John Smith

How many firefighters died?

On 31 January 2020 the Australasian Fire and Emergency Service Authorities Council (AFAC) stated that [a total of nine firefighters had died](#) (included in the overall total of 33 deaths). On 4 February 2020, in a speech to Parliament, [Prime Minister Scott Morrison named the nine firefighters](#), listed here in alphabetical order, as:

Rick DeMorgan Jr (US)	Geoffrey Keaton	David Moresi
Paul Hudson (US)	Ian McBeth (US)	Andrew O'Dwyer
Mat Kavanagh	Samuel McPaul	Bill Slade

American firefighters Captain Ian McBeth, First Officer Paul Hudson and Flight Engineer Rick DeMorgan Jr were killed when their water-bombing C-130 Hercules aircraft operated by [Coulson Aviation](#) crashed in southern NSW on 23 January 2020.

How many houses were destroyed?

A tweet by AFAC published on 28 February 2020 stated that [a total of 3,094 houses had been lost](#) across NSW, Victoria, Queensland, ACT, Western Australia and South Australia. On 12 February 2020 the NSW Rural Fire Service (RFS) reported that [2,439 homes had been destroyed](#) in NSW.

How much land was burned?

A tweet by AFAC published on 28 February 2020 stated that [over 17 million hectares had been burned](#) across NSW, Victoria, Queensland, ACT, Western Australia and South Australia.

The NSW Department of Planning, Industry and Environment webpage '[Understanding the impact of the 2019–20 fires](#)' (last updated on 27 February 2020) states:

The 2019-20 bushfires in New South Wales (NSW) have been unprecedented in their extent and intensity. As of 28 January 2020, the fires in NSW had burnt 5.3 million hectares (6.7% of the State), including 2.7 million hectares in national parks (37% of the State's national park estate).

The Department also notes that in NSW:

- More than 80% of the World Heritage listed Greater Blue Mountains Area and 54% of the NSW components of the Gondwana Rainforests of Australia World Heritage property have been affected by fire.
- ...
- 55 parks or reserves have had more than 99% of their area affected by fire
- 70 parks or reserves have 75-99% of their area affected
- 29 parks or reserves have 50-74% of their area affected.

On 11 February 2020 the NSW RFS [Major Fire Update](#) noted (content now removed):

A large number of major fires that have burned for some months have now been set to out. These include:

- Myall Creek Road (Richmond Valley) - 121,306 hectares
- Kerry Ridge (Muswellbrook) - 191,574 hectares
- Gospers Mountain (Hawkesbury) - 512,626 hectares

- Erskine Creek (Blue Mountains) - 22,631 hectares
- Green Wattle Creek (Wollondilly) - 278,199 hectares
- Morton (Wingecarribee) - 23,004 hectares
- Currowan (Shoalhaven) - 314,598 hectares

The Bureau of Meteorology noted in its [Annual Climate Statement 2019](#), published on 9 January 2020, that, ‘The extensive and long-lived fires appear to be the largest in scale in the modern record in New South Wales, while the total area burnt appears to be the largest in a single recorded fire season for eastern Australia’.

On 8 February 2020 the [ACT Emergency Services Agency \(ESA\) stated](#) that the Orroral Valley fire was approximately 86,562 hectares in size.

Various sources quoted an incident update from the South Australian Country Fire Service (CFS) on 31 January 2020 which reported that [210,606 hectares of land on Kangaroo Island](#) (about 48 per cent of the Island) had been burned. The South Australian Department for Environment and Water stated on 7 February 2020 that [over 90,000 hectares of national park in South Australia had been burned](#).

On 28 February 2020 the Victorian Country Fire Authority declared that ‘all significant fires’ in Victoria had now been contained, and noted that more than [1.5 million hectares of land had been burned](#).

A [9 News article](#), published on 14 January 2020, stated:

The federal government is set to revise the total amount of land burnt in Australia this bushfire season after millions of hectares in the Northern Territory wasn't included in the official count. Recent figures put the number of hectares destroyed at around 10 million, however this did not include nearly 7 million hectares of land in the Northern Territory.

...

Since August, the beginning of the bushfire season in Australia, approximately 6.8 million hectares of land has burnt in the Northern Territory, which has experienced a relatively average bushfire season and not been gripped by same the level of crisis seen in many other parts of the country.

How many animals died?

Conservative estimates, based on NSW and Victoria only, project losses of over one billion mammals, birds and reptiles combined. This excludes insects, the loss of which has been [reported to be in the ‘hundreds of billions’](#).

On 8 January 2020, Professor Chris Dickman, an expert from the University of Sydney’s Faculty of Science in the ecology, conservation and management of Australian mammals, [estimated that more than one billion animals nationally](#) had so far been killed in the bushfires, with more than 800 million of those in NSW. His calculations were deliberately conservative, as the university’s statement notes, ‘the true mortality is therefore likely to be substantially higher than those estimated’.

Professor Dickman’s estimate was widely reported, including overseas, and as an [RMIT Fact Check article](#) published by the ABC on 31 January suggested, it was also generally supported by other experts in the field. Supporting the probability that the number killed is in fact much higher, the article notes:

Professor Dickman told Fact Check, his estimate of 1 billion animals is based on projected losses only in NSW and Victoria; his figures do not take into account losses of wildlife in areas such as Kangaroo Island in South Australia, or in the other states.

Dr Mark Eldridge, principal research scientist at the Australian Museum in Sydney, was cited in the ABC Fact Check article as saying:

... there is "no good data" on what to expect in terms of proportion of animals that might have perished outright in the fires or that could have survived. Nor is there any data on what proportion of animals might have succumbed to injuries, starvation or predators in the aftermath.

How many species have become endangered/extinct?

Various modelling suggests that the fires have had a significant impact on many rare or threatened animals, plants, and insects, to the extent that some of the losses are feared to be permanent.

On 20 January 2020 the Australian Government's Department of Agriculture, Water and the Environment released [an initial list of threatened and migratory species](#) that have 'more than 10% of their known or predicted distribution in areas affected by bushfires in southern and eastern Australia from 1 August 2019 and 13 January 2020'. The analysis was conducted by comparing fire maps from state fire agencies with 'maps of the modelled distributions of species protected under the *Environment Protection and Biodiversity Conservation Act 1999*'. Preliminary results indicated that '49 listed threatened species have more than 80% of their modelled likely or known distribution within the fire extent'.

Building on this analysis, on 11 February 2020 the Department published [a 'provisional list of 113 animal species](#) that have been identified by experts as the highest priorities for urgent management intervention' following the 2019–20 bushfires:

Most of these animals have potentially had at least 30% of their range burnt, and many have had substantially more. The provisional list includes 13 bird, 19 mammal, 20 reptile, 17 frog, 5 invertebrate, 22 crayfish and 17 fish species. The priority animals were identified based on the extent to which their range has potentially been burnt, how imperilled they were before the fires (for example, whether they were already listed as vulnerable, endangered or critically endangered), and the physical, behavioural and ecological traits which influence their vulnerability to fire.

On 19 February 2020 the Department published [an initial list of threatened ecological communities](#) that 'have more than 10% of their estimated distribution in areas affected by bushfires in southern and eastern Australia between 1 July 2019 and 11 February 2020'. Preliminary results indicated that four of the 84 nationally listed threatened ecological communities have 'more than 50% of their estimated distribution within the fire extent'.

An article published on 19 January 2020 by *The Conversation* [used satellite imagery to overlay burnt areas \(up to 7 January 2020\) with the approximate distributions of all the threatened animals and plants](#) listed under the *Environment Protection and Biodiversity Conservation Act 1999*. The analysis was restricted to 'mediterranean' and temperate zones of south-east and south-west Australia and found that '99% of the area burned in the current fires contains potential habitat for at least one nationally listed threatened species' and that 'approximately 70 nationally threatened species have had at least 50% of their range burnt'.

It also reported that threatened plants were the most affected, noting that 'twenty-nine of the 30 species that have had more than 80% of their range burnt are plants' and that several species of plants have had 'their entire range consumed by the fires'. Other species that were severely

affected included the Kangaroo Island dunnart and the Kangaroo Island glossy black cockatoo, the populations of which numbered only in the hundreds prior to the bushfires.

An [article](#) published on 15 January 2020 by the Australian National University stated:

Australia’s current bushfire crisis could wipe out some of our rarer insect species, according to a group of experts. Associate Professor Michael Braby from The Australian National University (ANU) says the bushfires will have a huge impact on our native insects, as well as the plants and animals that rely on them.

An [article](#) published on 4 January 2020 by *The Guardian* explained:

Bushfires don’t just burn animals to death but create starvation events. Birds lose their breeding trees and the fruits and invertebrates they feed on. Ground-dwelling mammals that do survive emerge to find an open landscape with nowhere to hide, which one ecologist said became a “hunting arena” for feral cats and foxes.

Which countries offered/provided assistance?

In a speech to Parliament on 4 February 2020 [Prime Minister Scott Morrison stated that 70 countries had offered assistance](#) with the Australian 2019–20 bushfires. Listed below (in alphabetical order) are those countries for which individual announcements or reports could be found:

[Canada](#)¹

[New Zealand](#)²

[United Arab Emirates](#)

[Denmark](#)

[Palau](#)

[United Kingdom](#)³

[Fiji](#)

[Papua New Guinea](#)

[United States](#)⁴

[France](#)

[Samoa](#)

[Tuvalu](#)

[Indonesia](#)

[Saudi Arabia](#)

[Vanuatu](#)

[Japan](#)

[Singapore](#)

[Western Cape \(South Africa\)](#)

[Malaysia](#)

[Solomon Islands](#)

[Nauru](#)

[South Korea](#)

A tweet by AFAC published on 28 February 2020 stated that in terms of the [overseas ‘resources’ deployed](#), 239 were from Canada, 360 were from the US, and 320 were from New Zealand.

What military assistance was provided?

In addition to the [ongoing logistical and engineering support from the Australian Defence Force \(ADF\)](#), a historical precedent was set on 4 January 2020 when the Prime Minister, the Minister for Defence, and the Minister for Water Resources, Drought, Rural Finance, Natural Disaster and Emergency announced the [‘compulsory Call-Out of Australian Defence Force Reserve Brigades for the first time in the country’s history’](#), involving the deployment of up to 3,000 Reservists. It was also announced that one of the Royal Australian Navy’s two largest ships, HMAS *Adelaide*, would join two other Navy vessels in preparation for the evacuation of people from fire-affected areas

1. See also [Canadian Interagency Forest Fire Centre statement](#).

2. See also [press release](#) on military support.

3. See also Prime Minister Boris Johnson’s [tweet](#) and [BBC news article](#).

4. See also [US Aid website](#).

along the coast, and that an additional three Chinook helicopters and six other aircraft would also be deployed.

In a speech to Parliament on 4 February 2020 [Prime Minister Scott Morrison noted that 6,500 ADF personnel overall had been mobilised](#), including 3,000 Reservists.

As at 14 February 2020, approximately 5,400 ADF personnel (including 1,400 Reservists) were still supporting [Operation Bushfire Assist](#). Some 201 international military personnel were also assisting. As at 11 March 2020, numbers had dropped to about 450 ADF personnel (including about 220 Reservists). These figures are updated regularly and have fluctuated over the course of the 2019–20 bushfires. According to the Department of Defence, ‘ADF support will continue for as long as required’.

According to the Operation Bushfire Assist webpage, as at 10 March 2020 the ADF had:

- cleared 4,848 km of roads
- cleared/repaired 1,287 km of fencing
- cleared 240 km of firebreaks
- purified 3.9 million litres of water on Kangaroo Island
- purified 6.1 million litres of water at Bega
- provided over 77,262 meals on Defence bases to emergency services personnel and evacuees and
- delivered:
 - 5.4 million litres of water
 - 73,300 litres of fuel and
 - 1.3 million kilograms of fodder.

How many firefighters and volunteer firefighters were involved?

There have been reports from government and fire services agencies on the number of active firefighters involved at certain points in time with a particular fire, but the number overall has fluctuated throughout the 2019–20 Australian bushfires season.

On 31 January 2020 the NSW RFS reported in a tweet that [more than 1,600 firefighters were in the field](#). On 27 February 2020 AFAC stated in a tweet that [a cumulative total of some 6,386 ‘interstate personnel’](#) had been deployed overall. The parameters or methodology for calculating these figures were not provided.

On 28 February 2020 AFAC published a table that provides a breakdown by state/territory of the [combined numbers of interstate and international personnel](#) deployed to Queensland (828), NSW (5,732), Victoria (429), ACT (360) and South Australia (12) during the 2019–20 bushfires, with date ranges indicating the period of deployment (note that ‘personnel’ includes roles other than firefighters, such as incident management and aviation personnel). With the inclusion of 12 North American personnel posted to AFAC’s National Resource Sharing Centre, the total deployed amounts to 7,373. AFAC states, ‘This bushfire season has seen Australia’s largest coordinated interstate and international deployment of fire and emergency personnel by far’.

How many firefighters and volunteer firefighters are there in Australia?

According to Table 9A.3 in Part D, Section 9 of the Productivity Commission's [Report on Government Services 2020](#) published on 29 January 2020, for the year 2018–19 there were 15,817 firefighters in Australia (this includes permanent and part-time personnel, but excludes 'support workforce'). For the same period, there were in addition a total of 152,798 volunteer firefighters in Australia.

How many firefighting aircraft are there?

The [National Aerial Firefighting Centre \(NAFC\) describes its fleet](#) as follows:

The National Aerial Firefighting Fleet comprises approximately 130 contracted aircraft. These aircraft, contracted by NAFC on behalf of state and territory governments, are supplemented by additional state owned, and state contracted aircraft and other aircraft hired to meet peak demand across Australia. In total more than 500 aircraft, provided by over 150 operators, are available for firefighting across Australia.

Aircraft counts and locations vary from time to time as the fleet balance is adjusted and individual airframes are updated or replaced.

On 3 February 2020 AFAC stated that '[more than 500 aircraft are available for aerial firefighting](#) including contracted and "on call" aircraft. On busy days, over 250 aircraft are regularly in operations'.

On 20 February 2020 [the Queensland Government announced funding](#) to secure long-term use in that state of a 15,000 litre Large Air Tanker (LAT), citing difficulties with sourcing on-call LAT services from other states last year due to the emergency needs of those states.

What caused the 2019–20 Australian bushfires?

[Geoscience Australia states that lightning is the main natural cause of bushfires](#), accounting for about half of all cases:

Bushfires can originate from both human activity and natural causes with lightning the predominant natural source, accounting for about half of all ignitions in Australia. Fires of human origin currently account for the remainder and are classified as accidental or deliberate.

The [CSIRO states that the most common cause of bushfires is lightning](#) and that fires started by people are mostly accidental:

Bushfires are the result of a combination of weather and vegetation (which acts as a fuel for the fire), together with a way for the fire to begin – most commonly due to a lightning strike and sometimes human-influences (mostly accidental such as the use of machinery which produces a spark). Depending on weather conditions, embers can be transported by wind from one location to another, causing new fires or spotting.

The NSW RFS reported that [the Gospers Mountain fire was started by lightning](#) on 26 October 2019 and 'burnt through more than 512,000 hectares across the Lithgow, Hawkesbury, Hunter Valley, Cudgegong, Blue Mountains and Central Coast local government areas'.

On 3 February 2020 local media reported that the [Kangaroo Island fires had been started by lightning](#). According to the Victorian Country Fire Authority (CFA) and the NSW RFS, [the majority of the 2019–20 fires in Victoria and NSW were caused by lightning](#). However, it was reported in mid-January that [the main cause of the December 2019 fires in Tasmania was arson](#), with a Tasmanian

Fire Service spokesperson quoted as saying ‘Approximately 21,000 of the 35,000 hectares burnt is a result of deliberately lit fires’.

[A discarded cigarette was believed to be the accidental cause of the Binna Burra fire](#) in the Gold Coast hinterland in September 2019 and the [Orroral Valley fire](#) in the ACT in January 2020 was ‘likely caused by a landing light from an Army MRH-90 helicopter, while the aircraft was on the ground’.

How do the 2019–20 Australian bushfires compare with other major Australian bushfires?

The following major bushfire ‘events’ (as opposed to seasonal fires) are significant due to the record number of deaths, longevity or size. The CSIRO noted that, as at 18 February, with [more than 10 million hectares of land burned](#), this was already greater than the area burned in the Black Saturday 2009 and Ash Wednesday 1983 bushfires combined.

Black Saturday, 2009

The [2009 Black Saturday fires](#) remain the deadliest bushfire event on record in Australia’s history. The Victorian CFA website records:

- 173 people died (including two firefighters)
- 2,055 houses were destroyed and
- over 400,000 hectares of land were burned.

The Victorian [Department of Sustainability and Environment reported](#) in 2012 that a total of 406,337 hectares of land was burned (p. 5) and the [2009 Victorian Bushfires Royal Commission](#) stated 2,133 houses were destroyed (p. 13). [AFAC has reported](#) that 450,000 hectares of land were burned and 2,029 homes were lost in the Black Saturday fires.

The [National Museum of Australia](#) notes that 120 people died in the Kinglake area alone and that the RSPCA estimated that ‘up to one million wild and domesticated animals died in the disaster’.

The [2009 Victorian Bushfires Royal Commission](#) found (p. 12):

Nine of the 15 fires the Commission examined were started as a direct or indirect result of human activity; five were associated with the failure of electricity assets, and the causes of four were thought to be suspicious.

2003 Alpine/Canberra bushfires

The January 2003 bushfires in the Australian Alps affected NSW, Victoria, and the ACT.

In October 2003 the [House of Representatives’ Select Committee into the recent Australian bushfires](#) reported (Appendix A, p. 327):

On January 8 2003, lightning strikes from a severe electrical storm sparked 87 fires in the drought affected landscape of north-east Victoria and 60 fires in southern New South Wales and the adjoining areas of the Australian Capital Territory. Over the coming weeks, these fires spread rapidly, behaving in ways not previously seen, eventually merging into one continuous line spanning an area of 1.7 million hectares.

[The Bureau of Meteorology stated in its 2003 annual report](#) that the ‘fire complex’ burned more than 1.1 million hectares in Victoria alone and was the third largest recorded fire in south eastern Australia.

The [ACT ESA](#) notes:

- 4 people died
- 164,000 hectares (or nearly 70 per cent) of land in the ACT were burned
- 90 per cent of Namadgi National Park was burned and
- over 500 homes were destroyed.

The [Victorian CFA](#) states the North East and Gippsland fires burned for 71 days between 8 January and 19 March 2003, and cites the loss of:

- 41 houses
- 3 bridges
- 213 other structures
- 10,000 livestock and
- 1.2 million hectares of land.

Ash Wednesday, 1983

Until the Black Saturday fires, the Ash Wednesday fires on 16 February 1983 were the deadliest on record in Australia's history. A total of 75 people died, including [13 Victorian CFA firefighters](#), one casual firefighter, and [three South Australian CFS firefighters](#).

[Forest Fire Management Victoria](#) records:

- 47 people in Victoria and 28 people in South Australia died
- around 210,000 hectares in Victoria and 208,000 hectares in South Australia were burned and
- 2,080 homes in Victoria and 383 homes in South Australia were destroyed.

Black Friday, 1939

Fires burning in Victoria in December 1938 merged on 13 January 1939 to form severe fires that came to be known as Black Friday.

The [report from the 1939 Royal Commission](#) into the bushfires stated (p. 5):

Seventy-one lives were lost. Sixty-nine mills were burned. Millions of acres of fine forest, of almost incalculable value, were destroyed or badly damaged. Townships were obliterated in a few minutes. Mills, houses, bridges, tramways, machinery, were burned to the ground ; men, cattle, horses, sheep, were devoured by the fires or asphyxiated by the scorching debilitated air. Generally, the numerous fires which during December, in many parts of Victoria, had been burning separately, as they do in any summer, either " under control " as it is falsely and dangerously called, or entirely untended, reached the climax of their intensity and joined forces in a devastating confluence of flame on Friday, the 13th of January.

[Forest Fire Management Victoria](#) records:

- 71 people died
- over 1,000 homes were burned and
- between [1.5 million and 2 million hectares](#) of land were burned.

[The Australian Institute for Disaster Resilience's disasters database](#) records:

The fires claimed 36 lives in Victoria on Black Friday; the total number of deaths across January was 71. Approximately 1300 buildings were lost – more than 700 homes, 69 sawmills, many businesses, farms and other buildings.

Resources

- [Income support for households affected by natural disasters: a quick guide](#), Parliamentary Library
- [Australasian Fire and Emergency Service Authorities Council \(AFAC\)](#)
- [Australian Institute for Disaster Resilience](#)
- [‘The 2019–20 bushfires: a CSIRO explainer’](#)
- [Bushfire and Natural Hazard Cooperative Research Centre](#)
 - [Disaster inquiries: data discovery resource](#)
 - [Major post-event inquiries and reviews: review of recommendations](#)

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