



Department of Planning, Industry and Environment

Wildlife and Conservation Bushfire Recovery

Immediate Response January 2020



Message from the Minister



The recent bushfires of late 2019 and early 2020 have had a devastating impact on our communities and our natural environment. Tragically, lives have been lost and thousands of homes have been destroyed or damaged, across the country. The bushfires have burned more than 5.3 million hectares in New South Wales, including more than 2.7 million hectares of our national park estate.

We are still determining the full magnitude of the damage, in terms of the extent and severity of the fires and the impacts on our wildlife and their natural habitats. Efforts continue to actively fight fires that are still burning in a number of areas of the state. Using state of the art aerial imagery, remote sensing and mapping techniques, our scientists are completing our understanding of the impacts the fires have had on our natural environment and what this means for recovery.

What we know is that many of our most vulnerable species have been heavily impacted as a result of the fires and now face threats from habitat loss, scarcity of food and water and predation by feral animals. While our assessment continues, we are undertaking essential recovery actions right now.

This document sets out the immediate actions we are taking to protect wildlife and support the natural recovery process that has already started in many areas. Our immediate response includes the deployment of watering stations, supplementary food drops, and broad-scale feral animal control. We are also planning for the longer-term restoration and recovery of our native animals, plants and landscapes across New South Wales. We will continue to update our response as we improve our understanding of the impacts of the fires.

I want to take this opportunity to thank everyone who has contributed to the firefighting effort. In particular, I want to thank those volunteers who have selflessly contributed their time to protect others, often while their own properties were under threat, and the firefighting staff in my own portfolio, including in the National Parks and Wildlife Service, many of whom are still fighting active fires.

Coming through a disaster is a time when our community unites. Many of us have been touched by the images of the tireless and heroic efforts of not only our firefighters, but also volunteers rescuing wildlife from fire grounds and providing care. These stories and images have contributed to a groundswell of support and generosity from communities in New South Wales, Australia and internationally. This support will greatly assist in the rehabilitation of many injured animals and restoration of their habitat.

The Hon. Matthew Kean MP
Minister for Energy and Environment

Key facts about the impacts of the 2019–2020 bushfires on NSW wildlife and conservation

Impacts

Fire affected



5.3 million hectares of land



More than **80%** of the **Greater Blue Mountains World Heritage Area**



54% of the **Gondwana Rainforests World Heritage Area**



40% of state forest land



35% of rainforest areas



37% of national park estate



24% of koala habitat in eastern NSW

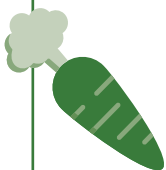


4% of freehold land

6 threatened fauna species have **more than 70%** of their recorded sites within the fire affected zones

46 threatened plant species have **more than 90%** of their recorded sites within fire affected zones

Immediate government response



Over 2 tonnes of supplementary food delivered to brush-tailed rock-wallabies

\$1 million in **emergency funding** set aside as part of a \$6.5 million investment to support rescue and care of injured wildlife

Drinking stations installed for native wildlife



Extensive feral animal and weed control

Firefighting mission saves prehistoric **Wollemi pines**

Veterinarian and wildlife expertise provided through Taronga Conservation Society



6 separate species rescued and taken into captive protection



Fire severity and refugia mapping



Impact on wildlife and conservation in NSW

How much of NSW has been burnt?

The 2019–2020 bushfire season is the most widespread and extreme bushfire disaster that New South Wales has ever experienced. As at 28 January 2020, more than 5.3 million hectares (6.7%) of New South Wales has been impacted by the bushfires. This includes extensive damage in our national parks, with more than 2.7 million hectares of national park estate affected. In some regions, more than half of the national park estate has been affected.

Mapping the extent and severity of damage

The full extent of the impact of the fires on wildlife is still emerging. Many research institutions along with government agencies are making efforts to assess the extent of the fires to help us with our recovery efforts.

On 16 January 2020, we published an [initial map](#) showing the area burnt, using satellite imagery and data from the NSW Rural Fire Service. This map will be updated fortnightly¹.

To date, the fires have affected the following key areas:

- more than 37% of the national park estate
- more than 80% of the Greater Blue Mountains World Heritage Area
- more than 54% of the Gondwana Rainforests World Heritage Area.

**Wollemi pine rescue
(John Spencer/DPIE)**

¹ In collaboration with the University of NSW, the Environment, Energy and Science Group within the Department of Planning, Industry and Environment has developed a new method using Google earth imagery to rapidly assess the intensity of the fires across the landscape and identify patches that did not burn.



Many individual national parks have also been seriously impacted:

- 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.

Although significant areas of the national park estate have been affected by the fires, the intensity of the fires within the burnt areas varies greatly.

We expect areas where the fires were not as severe, and the tops of the trees did not burn, to regenerate more readily. These areas will provide important refuge areas for our wildlife while the bush begins to recover.



There are also patches of bushland that have escaped the fire altogether. For example, while more than 80% of the Greater Blue Mountains World Heritage Area has been fire-affected, only 7% experienced high fire intensity burns, where the tops of the trees burnt.



Regeneration in Crowdy Bay
(Andrew Marshall/DPIE)

Impacts on native vegetation

Many Australian native plants and communities are naturally adapted to fires of a certain intensity and frequency and can recover from fire events. Others are not and may need intervention to improve their chances of recovery.

We are still assessing the impact of the fires on vegetation types. So far, we know that:

- 53% of heathlands in New South Wales have been impacted by the fires. The native plant species in these ecosystems are highly adapted to fire
- 41% of wet sclerophyll forests (predominantly with an overstory of eucalypts and acacias) have been impacted by the fires. The trees in these ecosystems are generally adapted to fire but the moist understory habitat can be more fire sensitive
- 35% of rainforests in New South Wales have been impacted by the fires. These types of ecosystems are sensitive to fire and may require more support for recovery.

See Appendix 1 for detailed analysis of the impact on threatened plant species.



The NSW Biodiversity Conservation Trust

The NSW Biodiversity Conservation Trust manages nearly 2000 private land conservation agreements with landholders across New South Wales covering more than 2.1 million hectares.

More than 50,000 hectares across 260 landholders who have private land conservation agreements with the NSW Biodiversity Conservation Trust have been affected by the fires. The NSW Biodiversity Conservation Trust can support impacted landholders with technical advice or financial assistance. Assistance will include grants for fencing, weed control or assisted revegetation as part of their overall fire recovery.



Corroboree frog
(David Hunter/DPIE)

Impacts on wildlife

We know that the fires have had a devastating impact on native animals. There have been many reports that the loss of native animals extends to more than 800 million animals. The NSW Government is systematically assessing the impacts for individual species, but we already know that the fires have impacted the habitat of at least 84 of our most vulnerable animals.

Our analysis shows:

- about one quarter of all modelled koala habitat in eastern NSW has been impacted by the fires
- 30% of bushland where 32 threatened animal species have previously been sighted has been impacted by the fires
- 5% of bushland where 114 threatened animal species have previously been sighted has been impacted by the fires
- the long-footed potoroo is likely to be badly impacted as almost every previous sighting of this animal occurs within fire-affected areas
- the brush-tailed rock-wallaby is likely to be badly affected as more than 80% of all previous sightings of this animal occurs within fire-affected areas.

See Appendix 1 for detailed analysis of the impact on threatened native animals.



Koala
(Naomi Golightly/DPIE)

Recovery actions

There are some immediate interventions that have already started. These are the most urgent actions needed to support our wildlife and their natural habitats right now. We will build on these actions as our understanding of the impact of the fires and the priorities for recovery develop. Right now, government agencies, community volunteers, research institutions and non-government organisations are all working to deliver immediate relief in key locations.



Saving our Species

The Saving our Species program is a \$100 million commitment from the NSW Government to secure the future of NSW threatened plants and animals across all land tenures. A task that has just become more challenging, and even more important than ever before.

With over 1000 threatened animals and plants in New South Wales, Saving our Species is investing in over 450 threatened species and communities, but the recent fires have impacted and burnt critical habitat for many of these species and it will take time for the habitat to recover.

We are assessing the impact of the fires on our Saving our Species sites and interventions in order to identify and implement the practical actions needed to protect the plants and animals in these bushfire hit areas. Examples of the practical actions already underway include supplementary food for the mountain pygmy possum and brush-tailed rock-wallabies outlined on page 12.



Supplementary food, water and shelter

Many native animals that escaped the fires now face risks of starvation or dehydration, a situation made worse by the ongoing drought. Supplementary food, water and shelter are being provided to sustain native animals while their natural habitats recover.

Examples of the immediate actions include:

- drops of thousands of kilograms of supplementary food to more than a dozen colonies of brush-tailed rock-wallabies
- deployment of watering stations for koalas at several key sites on the North Coast
- delivery of supplementary food and water to mountain pygmy possums in Kosciuszko National Park
- emergency works to repair damaged infrastructure at the southern corroboree frog field enclosures in Kosciuszko National Park.



Seed banking and insurance populations

Some animals and plants are at significant risk as a direct result of the fires. To give them the best chance of recovery we are collecting seeds for banking and individual animals for care and emergency housing until it is safe to release them back to the wild or to provide an insurance population should they struggle to survive. Our teams are on the ground working with a range of organisations including Taronga Conservation Society, the Royal Botanic Gardens Sydney and non-government partners.

Rescue operations are underway for:

- platypus
- grey-headed flying foxes
- Booroolong frogs
- genetically important koalas from the Blue Mountains region
- Manning River helmeted turtles
- northern corroboree frogs
- seeds and plant cuttings from endangered rainforest plants and other high-risk habitats for nursery propagation, care and habitat restoration
- seeds from critically endangered plant species including Bago leek orchid and Kelton's leek orchid.



Feral animal and weed control

Fire-affected landscapes leave our native animals exposed to feral cats, dogs and foxes. Our native animals are also competing for scarce food with feral deer, pigs and goats. Emergency feral animal and weed control is underway to protect our native animals while their habitat recovers. This pest control will also help farmers impacted by the fires.

Our immediate actions include:

- widespread aerial shooting of feral deer, pigs and goats in burnt areas and unburnt refuge areas
- extensive aerial baiting for foxes and wild dogs in burnt areas and unburnt refuge areas
- ground-based shooting, trapping and baiting of feral predators (dogs, cats, foxes) and feral herbivores (deer, pigs, goats and rabbits) in key refuge areas and important sites for remaining populations of threatened species
- post-fire weed control in areas to benefit threatened species and those previously inaccessible due to dense vegetation
- planning for the installation of feral proof fences to protect recovering vegetation and wildlife communities.



Planned action for feral animal control

Over the next twelve months, National Parks and Wildlife Service will deliver extensive control programs to protect native animals and plants from feral animals and weeds. This includes:

- 1500–2000 hours of aerial shooting
- localised follow up and ground shooting
- up to 60,000 kilometres of aerial baiting
- deployment of up to 1 million baits.

Strict approvals and evidence-based guidelines are in place to mitigate the risks to native species and domestic animals.

Target levels will be reviewed regularly taking into account operational factors and results on the ground.



Survival, recovery and regeneration

We are preparing an inventory of fire impacts on animals and plants. This includes surveying the areas and species that have survived the fires and tracking recovery. We have started on-ground surveys for wildlife and installed remote cameras to track animal movements so that we can support long-term recovery.

The news in some parks is positive. We are finding areas that have survived the fires and areas that are already starting to naturally regenerate. These areas provide important refuges for surviving animals to find food and some limited shelter.



Wollemi pines saved from this season's bushfires

The Wollemi pines, which were thought to be extinct before 1994 and whose location is kept secret to prevent contamination, were saved through an unprecedented environmental protection mission during the recent bushfires.

The operation included large air tankers laying fire retardant. Specialist firefighters from the National Parks and Wildlife Service Remote Area Firefighting Team were winched into the remote site from helicopters to set up an irrigation system in the gorge to increase the moisture content on the grounds.

Bundjalung National Park
(Dean Egan)

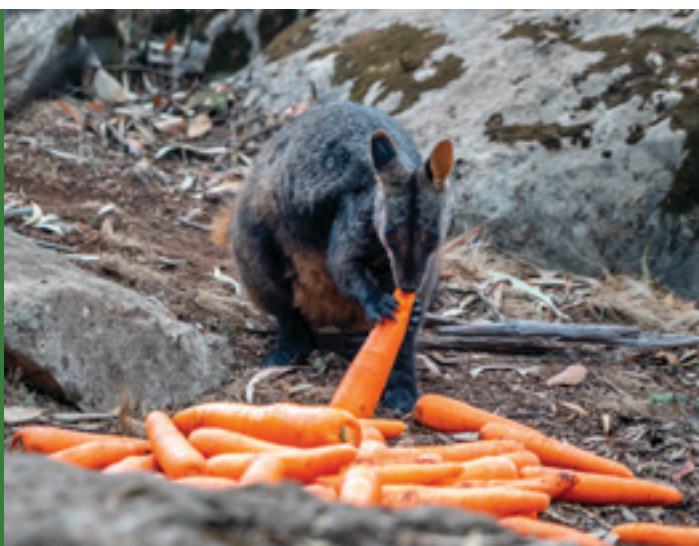


Mountain pygmy possums

We have established food and water stations for endangered mountain pygmy possums in Kosciuszko National Park. These tiny possums live on the ground in rocky boulder fields and forage in the surrounding alpine heath. Their habitat was burnt in the 2019–2020 fires.

Brush-tailed rock-wallabies

We have dropped and carried in thousands of kilograms of food, including carrots and sweet potatoes, into over a dozen colonies of brush-tailed rock-wallabies across the fire affected areas within national parks. These wallabies are endangered in New South Wales. More than 80% of their food source has been affected by the fires and there are few places available to them to naturally forage, until their natural habitats begin to recover.



Koalas

About one quarter of all the modelled koala habitat in eastern NSW has been impacted by the bushfires, including some key populations. In addition to urgent support measures such as drinking stations and feral animal control, we are developing a longer-term plan to ensure NSW koalas recover from the bushfires. The NSW Koala Strategy Expert Advisory Panel chaired by the Deputy Chief Scientist and Engineer is meeting with koala experts to identify priority actions. From this we will publish a NSW Koala Strategy: Bushfire Recovery Plan.



**Flying fox under care
(Taronga Conservation
Society)**

Supporting wildlife carers

Injured wildlife needs specialist care to maximise their chance of recovery. Volunteer wildlife rehabilitators and veterinary professionals are on the frontline, rescuing injured wildlife. The NSW Government is providing resources to support wildlife rescue and rehabilitation. A total of \$6.5 million has been committed for this work, including \$1 million in emergency funding in response to the bushfires.

Our immediate actions include:

- making \$500,000 available for wildlife rehabilitators to cover costs of rescue and rehabilitation of injured native wildlife
- establishing wildlife coordinator positions within the National Parks and Wildlife Service to help coordinate wildlife rescue
- assisting with rescue of injured wildlife from fire grounds
- providing information for the community through the [Environment, Energy and Science website](#).

Where to from here

We are still collecting information and data to inform longer term recovery (noting that some fires are still active). But we have already commenced work and we will shortly publish a medium-term NSW wildlife and conservation bushfire recovery plan. This will build on the actions identified in this immediate response plan.

Our planning is considering detailed species or local protection plans, measures to support key refuge areas in national parks, and longer-term measures to protect wildlife from feral animals and other pests in key habitats. The plan will consider:

- mapping and analysis to identify biodiversity impacts and prioritise on-ground action
- bolstering our breeding programs in fire affected areas, including consideration of relocation and translocation of animals impacted by the fires
- habitat restoration
- expanding conservation fencing to protect recovering ecosystems
- additional fire management to protect refugia and unburnt areas.

Our landscape is quite extraordinary in how it naturally responds to fire. But these fires have been unprecedented in scale with a devastating impact on our plants and animals. Our staff are on the ground providing an immediate emergency response with invaluable input from scientists, experts and community groups. We will closely monitor the recovery of our wildlife and ecosystems, and adapt our efforts to support this recovery as we learn more.

Appendix 1

Table 1 Initial analysis of threatened native animals in fire affected areas based on previous records of sightings. Please note that data was current as of 6 January 2020. For more comprehensive and updated information, visit or search for '[Understanding the impact of the 2019-20 fires](#)'.

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Long-footed potoroo	<i>Potorous longipes</i>	Critically Endangered	68	97.1	2.9
<Null>	<i>Phyloria pughii</i>	Endangered	131	89.3	0.0
Hastings River mouse	<i>Pseudomys oralis</i>	Endangered	1091	81.9	7.1
Brush-tailed rock-wallaby	<i>Petrogale penicillata</i>	Endangered	3962	81.7	7.7
Parma wallaby	<i>Macropus parma</i>	Vulnerable	1993	73.7	12.8
Greater glider population in the Eurobodalla local government area	<i>Petauroides volans</i>	Endangered	632	71.4	13.8
Blue Mountains water skink	<i>Eulamprus leuraensis</i>	Endangered	280	66.4	8.6
Yellow-bellied glider	<i>Petaurus australis</i>	Vulnerable	18481	53.6	9.3
Glandular frog	<i>Litoria subglandulosa</i>	Vulnerable	309	53.1	12.9
Giant dragonfly	<i>Petalura gigantea</i>	Endangered	295	52.9	19.0
Davies' tree frog	<i>Litoria daviesae</i>	Vulnerable	354	51.4	9.9
White-footed dunnart	<i>Sminthopsis leucopus</i>	Vulnerable	205	47.8	30.7
Peppered tree frog	<i>Litoria piperata</i>	Critically Endangered	72	47.2	0.0
Stuttering frog	<i>Mixophyes balbus</i>	Endangered	2036	46.0	14.5
Mountain pygmy-possum	<i>Burramys parvus</i>	Endangered	685	45.6	54.3

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Glossy black-cockatoo	<i>Calyptorhynchus lathami</i>	Vulnerable	23226	45.4	11.6
Sphagnum frog	<i>Philoria sphagnicolus</i>	Vulnerable	681	43.8	32.3
Rufous bettong	<i>Aepyprymnus rufescens</i>	Vulnerable	2027	43.2	25.2
Eastern false pipistrelle	<i>Falsistrellus tasmaniensis</i>	Vulnerable	2646	42.0	18.4
Golden-tipped bat	<i>Phoniscus papuensis</i>	Vulnerable	1291	41.8	19.8
Sooty owl	<i>Tyto tenebricosa</i>	Vulnerable	5355	41.3	18.2
Red-tailed black-cockatoo (coastal subspecies)	<i>Calyptorhynchus banksii banksii</i>	Critically Endangered	5	40.0	0.0
Long-nosed potoroo	<i>Potorous tridactylus</i>	Vulnerable	4618	39.5	52.5
Masked owl	<i>Tyto novaehollandiae</i>	Vulnerable	3416	37.4	16.8
Spotted-tailed quoll	<i>Dasyurus maculatus</i>	Vulnerable	10295	37.4	22.6
Fleay's barred frog	<i>Mixophyes fleayi</i>	Endangered	420	37.1	58.6
Northern free-tailed bat	<i>Ozimops lumsdenae</i>	Vulnerable	59	32.2	6.8
Southern brown bandicoot (eastern)	<i>Isodon obesulus obesulus</i>	Endangered	1212	32.0	53.8
Gang-gang cockatoo	<i>Callocephalon fimbriatum</i>	Vulnerable	9378	31.3	20.6
Spotted tree frog	<i>Litoria spenceri</i>	Critically Endangered	13	30.8	69.2
Hoary wattled bat	<i>Chalinolobus nigrogriseus</i>	Vulnerable	238	29.8	16.4
Olive whistler	<i>Pachycephala olivacea</i>	Vulnerable	1377	27.9	47.6
Purple copper butterfly, Bathurst copper butterfly	<i>Paralucia spinifera</i>	Endangered	166	27.7	5.4

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Pouched frog	<i>Assa darlingtoni</i>	Vulnerable	885	26.6	53.7
Powerful owl	<i>Ninox strenua</i>	Vulnerable	10486	26.4	15.7
Broad-headed snake	<i>Hoplocephalus bungaroides</i>	Endangered	467	26.3	34.7
Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	<i>Dromaius novaehollandiae</i>	Endangered	2371	25.8	25.2
Rufous scrub-bird	<i>Atrichornis rufescens</i>	Vulnerable	1312	24.4	66.4
Stephens' banded snake	<i>Hoplocephalus stephensii</i>	Vulnerable	442	24.2	23.5
Green-thighed frog	<i>Litoria brevipalmata</i>	Vulnerable	308	24.0	10.1
Smoky mouse	<i>Pseudomys fumeus</i>	Critically Endangered	225	23.6	29.8
Albert's lyrebird	<i>Menura alberti</i>	Vulnerable	2072	23.4	58.0
Striated fieldwren	<i>Calamanthus fuliginosus</i>	Endangered	205	22.4	72.7
Southern corroboree frog	<i>Pseudophryne corroboree</i>	Critically Endangered	260	22.3	77.7
Greater broad-nosed bat	<i>Scoteanax rueppellii</i>	Vulnerable	1966	22.1	15.5
Scarlet robin	<i>Petroica boodang</i>	Vulnerable	7879	21.9	19.4
Common blossom-bat	<i>Syconycteris australis</i>	Vulnerable	273	21.6	38.8
Large-eared pied bat	<i>Chalinolobus dwyeri</i>	Vulnerable	1821	21.5	10.9
Grey falcon	<i>Falco hypoleucos</i>	Endangered	312	20.5	20.8
Red-backed button-quail	<i>Turnix maculosus</i>	Vulnerable	69	18.8	15.9
Brush-tailed phascogale	<i>Phascogale tapoatafa</i>	Vulnerable	1450	18.6	10.8

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Red goshawk	<i>Erythroriorchis radiatus</i>	Critically Endangered	61	18.0	14.8
White-crowned snake	<i>Cacophis harriettae</i>	Vulnerable	61	18.0	4.9
Marbled frogmouth	<i>Podargus ocellatus</i>	Vulnerable	397	17.9	54.9
Little bent-winged bat	<i>Miniopterus australis</i>	Vulnerable	4750	17.6	14.6
Large bent-winged bat	<i>Miniopterus orianae oceanensis</i>	Vulnerable	6640	17.6	14.3
Flame robin	<i>Petroica phoenicea</i>	Vulnerable	10051	16.4	22.1
Common planigale	<i>Planigale maculata</i>	Vulnerable	278	16.2	14.4
Eastern chestnut mouse	<i>Pseudomys gracilicaudatus</i>	Vulnerable	198	16.2	55.1
Varied sittella	<i>Daphoenositta chrysoptera</i>	Vulnerable	9763	16.1	22.9
Manning River helmeted turtle, Purvis' turtle	<i>Myuchelys purvisi</i>	Endangered	299	16.1	14.1
Eastern pygmy-possum	<i>Cercartetus nanus</i>	Vulnerable	2359	16.0	28.0
Wompoo fruit-dove	<i>Ptilinopus magnificus</i>	Vulnerable	3928	15.8	41.4
Little lorikeet	<i>Glossopsitta pusilla</i>	Vulnerable	8920	15.0	16.7
Broad-toothed rat	<i>Mastacomys fuscus</i>	Vulnerable	683	14.9	80.8
Rosenberg's goanna	<i>Varanus rosenbergi</i>	Vulnerable	510	14.7	30.8
Pink robin	<i>Petroica rodinogaster</i>	Vulnerable	147	14.3	57.8
Barking owl	<i>Ninox connivens</i>	Vulnerable	2028	14.1	21.1
Black-breasted button-quail	<i>Turnix melanogaster</i>	Critically Endangered	64	14.1	70.3

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Giant barred frog	<i>Mixophyes iteratus</i>	Endangered	4053	13.2	10.3
Giant burrowing frog	<i>Heleioporus australiacus</i>	Vulnerable	1077	13.3	40.5
Olongburra frog	<i>Litoria olongburensis</i>	Vulnerable	196	12.8	40.3
Bellinger River snapping turtle	<i>Myuchelys georgesi</i>	Critically Endangered	104	12.5	2.9
Eastern cave bat	<i>Vespadelus troughtoni</i>	Vulnerable	627	12.4	13.9
Squirrel glider	<i>Petaurus norfolcensis</i>	Vulnerable	5103	12.3	9.2
Eastern grass owl	<i>Tyto longimembris</i>	Vulnerable	339	11.8	19.5
Tusked frog population in the Nandewar and New England Tableland Bioregions	<i>Adelotus brevis</i>	Endangered	196	11.7	1.0
Wallum froglet	<i>Crinia tinnula</i>	Vulnerable	1759	11.0	22.8
Booroolong frog	<i>Litoria booroolongensis</i>	Endangered	3116	10.3	3.4
Red-crowned toadlet	<i>Pseudophryne australis</i>	Vulnerable	2245	10.2	33.9
Southern myotis	<i>Myotis macropus</i>	Vulnerable	4422	10.2	8.3
Coastal petal tail	<i>Petalura litorea</i>	Endangered	98	10.2	43.9

Table 2 Initial analysis of threatened native plants in fire affected areas based on previous records of sightings. Please note that data was current as of 6 January 2020. For more comprehensive and updated information, visit or search for '[Understanding the impact of the 2019-20 fires](#)'.

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Creswick apple box	<i>Eucalyptus corticosa</i>	Vulnerable	76	100	0.0
<Null>	<i>Philotheca obovatifolia</i>	Endangered	14	100	0.0
<Null>	<i>Bertya</i> sp. (Clouds Creek, M. Fatemi 4)	Endangered	3	100	0.0
Montane green five-corners	<i>Styphelia perileuca</i>	Vulnerable	40	100	0.0
<Null>	<i>Caladenia montana</i>	Vulnerable	2	100	0.0
<Null>	<i>Prasophyllum innubum</i>	Critically Endangered	3	100	0.0
Kelton's leek orchid	<i>Prasophyllum keltonii</i>	Critically Endangered	55	100	0.0
<Null>	<i>Prasophyllum bagoense</i>	Critically Endangered	389	100	0.0
<Null>	<i>Persoonia hindii</i>	Endangered	936	100	0.0
Binghi homoranthus	<i>Homoranthus binghiensis</i>	Endangered	9	100	0.0
<Null>	<i>Eucalyptus</i> sp. Howes Swamp Creek	Endangered	10	100	0.0
<Null>	<i>Pimelea cremnophila</i>	Critically Endangered	5	100	0.0
Genoa River correa	<i>Correa lawrenceana</i> var. <i>genoensis</i>	Endangered	9	100	0.0
Musty leek orchid	<i>Prasophyllum pallens</i>	Vulnerable	1	100	0.0
<Null>	<i>Thelymitra alpicola</i>	Vulnerable	3	100	0.0
<Null>	<i>Cucumis althaeoides</i>	Critically Endangered	5	100	0.0
<Null>	<i>Hibbertia circinata</i>	Critically Endangered	1	100	0.0

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Torrington beard-heath	<i>Leucopogon confertus</i>	Endangered	10	100	0.0
Budawangs bush-pea	<i>Pultenaea baeuerlenii</i>	Vulnerable	19	100	0.0
Imlay mallee	<i>Eucalyptus imlayensis</i>	Critically Endangered	14	100	0.0
Budawangs wallaby grass	<i>Plinthanthesis rodwayi</i>	Critically Endangered	16	100	0.0
Soft grevillea	<i>Grevillea mollis</i>	Endangered	20	100	0.0
Floyd's zieria	<i>Zieria floydii</i>	Endangered	10	100	0.0
Coveny's zieria	<i>Zieria covenyi</i>	Endangered	39	100	0.0
<Null>	<i>Baeckea kandos</i>	Endangered	22	100	0.0
Bredbo gentian	<i>Gentiana bredboensis</i>	Critically Endangered	6	100	0.0
Narrow-leaf melichrus	<i>Melichrus</i> sp. <i>Gibberagee</i>	Endangered	771	99.9	0.0
Swamp mint-bush	<i>Prostanthera palustris</i>	Vulnerable	417	99.3	0.7
Narrabarba wattle	<i>Acacia constablei</i>	Vulnerable	109	99.1	0.0
Johnson's cycad	<i>Macrozamia johnsonii</i>	Endangered	629	99.1	0.0
Gibraltar mallee	<i>Eucalyptus dissita</i>	Vulnerable	76	98.7	1.3
East lynne midge orchid	<i>Genoplesium vernale</i>	Vulnerable	56	98.2	0.0
Gibraltar grevillea	<i>Grevillea rhizomatosa</i>	Vulnerable	1139	97.7	1.1
Budawangs cliff-heath	<i>Budawangia gnidioides</i>	Vulnerable	63	96.8	0.0
<Null>	<i>Veronica blakelyi</i>	Vulnerable	177	96.6	0.6
Small pale grass-lily	<i>Caesia parviflora</i> var. <i>minor</i>	Endangered	80	96.3	1.3
Evans grevillea	<i>Grevillea evansiana</i>	Vulnerable	86	95.4	0.0

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
New england gentian	<i>Gentiana wissmannii</i>	Vulnerable	20	95.0	0.0
Rusty desert phebalium	<i>Phebalium glandulosum</i> subsp. <i>eglandulosum</i>	Endangered	35	94.3	0.0
Monga tea tree	<i>Leptospermum thompsonii</i>	Vulnerable	45	93.3	2.2
<Null>	<i>Paspalidium grandispiculatum</i>	Vulnerable	131	93.1	2.3
Kanangra wattle	<i>Acacia clunies-rossiae</i>	Vulnerable	155	92.9	5.8
Kowmung hakea	<i>Hakea dohertyi</i>	Endangered	140	92.9	5.7
Ettrema mallee	<i>Eucalyptus sturgissiana</i>	Vulnerable	222	92.8	0.5
Rylstone bell	<i>Leionema sympetalum</i>	Vulnerable	54	92.6	1.9
Bird orchid	<i>Chiloglottis anaticeps</i>	Endangered	12	91.7	0.0
<Null>	<i>Kardomia prominens</i>	Endangered	10	90.0	0.0
Superb midge orchid	<i>Genoplesium superbum</i>	Endangered	10	90.0	0.0
Bombay bossiaea	<i>Bossiaea bombayensis</i>	Vulnerable	10	90.0	0.0
Backwater grevillea	<i>Grevillea scortechinii</i> subsp. <i>sarmentosa</i>	Vulnerable	64	89.1	0.0
Warra Broad-leaved sally	<i>Eucalyptus camphora</i> subsp. <i>relicta</i>	Endangered	18	88.9	0.0
Torrington pea	<i>Almaleea cambagei</i>	Endangered	26	88.5	3.9
Fletcher's drumsticks	<i>Isopogon fletcheri</i>	Vulnerable	33	87.9	0.0
<Null>	<i>Pultenaea</i> sp. <i>Olinda</i>	Endangered	38	86.8	0.0

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Banyabba shiny-barked gum	<i>Eucalyptus pachycalyx</i> subsp. <i>banyabba</i>	Endangered	30	86.7	13.3
Tall velvet sea-berry	<i>Haloragis exalata</i> subsp. <i>velutina</i>	Vulnerable	31	83.9	16.1
Slender greenhood	<i>Pterostylis foliata</i>	Vulnerable	12	83.3	0.0
Water nutgrass	<i>Cyperus aquatilis</i>	Endangered	66	83.3	0.0
Bristly shield fern	<i>Lastreopsis hispida</i>	Endangered	6	83.3	0.0
Mountain trachymene	<i>Trachymene scapigera</i>	Endangered	17	82.4	0.0
Deane's boronia	<i>Boronia deanei</i>		201	81.1	14.4
Wingello grevillea	<i>Grevillea molyneuxii</i>	Vulnerable	27	77.8	3.7
Banyabba grevillea	<i>Grevillea banyabba</i>	Vulnerable	53	77.4	15.1
<Null>	<i>Velleia perfoliata</i>	Vulnerable	21	76.2	14.3
Parris' bush-pea	<i>Pultenaea parrisiae</i>	Vulnerable	25	76.0	24.0
Metcalfe's greenhood	<i>Pterostylis metcalfei</i>	Vulnerable	75	72.0	0.0
Phantom wattle	<i>Acacia phasmoides</i>	Endangered	24	70.8	20.8
dense cord-rush	<i>Baloskion longipes</i>	Vulnerable	41	70.7	2.4
Stinky lily	<i>Typhonium</i> sp. <i>aff. brownii</i>	Vulnerable	32	68.8	0.0
<Null>	<i>Olearia cordata</i>	Endangered	87	66.7	13.8
Cryptic forest twiner	<i>Tylophora woollsii</i>	Vulnerable	76	65.8	11.8
Manning yellow solanum	<i>Solanum sulphureum</i>	Endangered	127	63.8	0.0
Velvet zieria	<i>Zieria murphyi</i>	Endangered	44	63.6	15.9

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Pygmy cypress pine	<i>Callitris oblonga</i>	Vulnerable	85	63.5	7.1
Buttercup doubletail	<i>Diuris aequalis</i>	Vulnerable	240	62.5	0.8
Beadle's grevillea	<i>Grevillea beadleana</i>	Endangered	111	62.2	27.0
Bodalla pomaderris	<i>Pomaderris bodalla</i>	Endangered	119	58.8	2.5
<Null>	<i>Glycine latrobeana</i>	Vulnerable	7	57.1	42.9
Chambigne bertya	<i>Bertya</i> sp. (Chambigne NR, M. Fatemi 24)	Critically Endangered	23	56.5	30.4
Nerriga grevillea	<i>Grevillea renwickiana</i>	Endangered	57	56.1	0.0
Blue-tongued greenhood	<i>Pterostylis oreophila</i>	Endangered	9	55.6	44.4
Hairy geebung	<i>Persoonia hirsuta</i>	Critically Endangered	637	55.3	3.5
Elegant greenhood	<i>Pterostylis elegans</i>	Endangered	29	55.2	17.2
Rock-face bluebell	<i>Wahlenbergia scopulicola</i>	Vulnerable	11	54.6	45.5
Tinospora vine	<i>Tinospora smilacina</i>	Endangered	57	54.4	12.3
Inverell cycad	<i>Macrozamia humilis</i>	Endangered	35	54.3	17.1
<Null>	<i>Hibbertia stricta</i> subsp. <i>furcatula</i>	Endangered	94	53.2	24.5
Ovenden's ironbark	<i>Eucalyptus caleyi</i> subsp. <i>ovendenii</i>	Endangered	17	52.9	5.9
Bailey's indigo	<i>Indigofera baileyi</i>	Vulnerable	36	52.8	8.3
Granite boronia	<i>Boronia granitica</i>	Endangered	74	52.7	21.6
Creek triplarina	<i>Triplarina imbricata</i>	Vulnerable	19	52.6	5.3
Tree guinea flower	<i>Hibbertia hexandra</i>	Endangered	37	51.4	35.1

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Cabbage kunzea	<i>Kunzea cabbagei</i>	Endangered	37	51.4	5.4
Black-hooded sun orchid	<i>Thelymitra atronitida</i>	Vulnerable	4	50.0	50.0
<Null>	<i>Pterostylis alpina</i>	Critically Endangered	8	50.0	25.0
Evans sedge	<i>Lepidosperma evansianum</i>	Vulnerable	14	50.0	0.0
Stringybark she-oak population in the Clarence Valley local government area	<i>Allocasuarina inophloia</i>	Vulnerable	2	50.0	0.0
Brown butterfly orchid	<i>Sarcochilus dilatatus</i>	Endangered	4	50.0	0.0
Scrambling lignum	<i>Muehlenbeckia costata</i>	Endangered	37	48.7	51.4
Nightcap plectranthus	<i>Plectranthus nitidus</i>	Vulnerable	35	48.6	20.0
Merimbula star-hair	<i>Astrotricha</i> sp. <i>Wallagaraugh</i>	Endangered	87	46.0	2.3
Megalong valley bottlebrush	<i>Callistemon megalongensis</i>	Endangered	114	43.9	0.0
Big Nellie hakea	<i>Hakea archaeoides</i>	Critically Endangered	99	43.4	29.3
Chef's cap correa	<i>Correa baeuerlenii</i>	Vulnerable	261	43.3	13.4
Fragrant pepperbush	<i>Tasmannia glaucifolia</i>	Vulnerable	340	42.7	52.1
Peach myrtle	<i>Uromyrtus australis</i>	Vulnerable	144	41.7	51.4
Hartman's sarcochilus	<i>Sarcochilus hartmannii</i>	Endangered	27	40.7	29.6
Dungowan starbush	<i>Asterolasia beckersii</i>	Vulnerable	32	40.6	6.3
Tuncurry midge orchid	<i>Genoplesium littorale</i>	Endangered	260	40.4	16.5
Capertee stringybark	<i>Eucalyptus cannonii</i>	Critically Endangered	535	40.2	16.5

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Charmhaven apple	<i>Angophora inopina</i>	Vulnerable	5817	39.8	1.0
Grove's paperbark	<i>Melaleuca groveana</i>	Vulnerable	358	39.7	8.1
<Null>	<i>Asterolasia elegans</i>	Vulnerable	151	38.4	37.8
Trailing monotoca	<i>Monotoca rotundifolia</i>	Endangered	8	37.5	50.0
Eucalyptus langleyi population north of the Shoalhaven River in the Shoalhaven local government area	<i>Eucalyptus langleyi</i>	Endangered	118	37.3	20.3
<Null>	<i>Micromyrtus blakelyi</i>	Endangered	650	36.3	42.9
<Null>	<i>Oldenlandia galioides</i>	Vulnerable	14	35.7	21.4
Noah's false chickweed	<i>Lindernia alsinoides</i>	Endangered	339	35.4	0.3
Lesser creeping fern	<i>Arthropteris palisotii</i>	Endangered	6	33.3	66.7
<Null>	<i>Tephrosia filipes</i>	Endangered	33	33.3	30.3
Seringia denticulata in the Hawkesbury local government area	<i>Seringia denticulata</i>	Vulnerable	6	33.3	0.0
Gorge hakea	<i>Hakea fraseri</i>	Endangered	27	33.3	37.0
Grey deua pomaderris	<i>Pomaderris gilmourii</i> var. <i>cana</i>	Vulnerable	3	33.3	66.7
<Null>	<i>Acacia gordonii</i>	Vulnerable	265	33.2	56.2
<Null>	<i>Zieria involucrata</i>	Endangered	740	32.8	39.2
Large-leafed monotaxis	<i>Monotaxis macrophylla</i>	Endangered	46	32.6	41.3

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Macnutt's wattle	<i>Acacia macnuttiana</i>	Endangered	62	32.3	41.9
Nabiac casuarina	<i>Allocasuarina simulans</i>	Vulnerable	153	32.0	19.6
<Null>	<i>Solanum armourense</i>	Vulnerable	145	31.7	65.5
Barrington tops ant orchid	<i>Chiloglottis platyptera</i>	Endangered	19	31.6	42.1
Trailing woodruff	<i>Asperula asthenes</i>	Vulnerable	167	31.1	11.4
Shannon creek boronia	<i>Boronia hapalophylla</i>	Vulnerable	234	30.8	54.7
Slaty red gum	<i>Eucalyptus glaucina</i>	Endangered	954	30.7	1.6
Small-leaved hazelwood	<i>Symplocos baeuerlenii</i>	Vulnerable	416	30.5	62.3
Narrow-leaf finger fern	<i>Grammitis stenophylla</i>	Vulnerable	67	29.98	29.9
<Null>	<i>Maundia triglochinosoides</i>	Endangered	526	29.	1.5
Slender screw fern	<i>Lindsaea incisa</i>	Vulnerable	308	28.6	8.8
Mittagong geebung	<i>Persoonia glaucescens</i>	Endangered	1207	28.5	0.4
<Null>	<i>Ancistrachne maidenii</i>	Endangered	102	28.	31.4
Milky silkpod	<i>Parsonsia dorrigoensis</i>	Vulnerable	1263	28.2	7.7
Tangled bedstraw	<i>Galium australe</i>	Vulnerable	33	27.0	36.4
Corokia	<i>Corokia whiteana</i>	Endangered	204	27.1	57.8
Scrub turpentine	<i>Rhodamnia rubescens</i>	Vulnerable	2876	26.9	20.1
Bordered guinea flower	<i>Hibbertia marginata</i>	Critically Endangered	406	26.9	1.5
Polblue eyebright	<i>Euphrasia ciliolata</i>	Vulnerable	161	26.1	37.9
Dorrigo daisy bush	<i>Olearia flocktoniae</i>	Vulnerable	623	25.8	25.2
Border ranges nightshade	<i>Solanum limitare</i>	Endangered	8	25.0	50.0

Common name	Scientific name	Conservation status	Total number of records in NSW	Rounded percent of records in fire affected area	Rounded percent of records on unburnt habitat in national park
Few-seeded bossiaea	<i>Bossiaea oligosperma</i>	Endangered	124	24.2	0.0
Small-flower grevillea	<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	Vulnerable	5217	23.4	5.8
<Null>	<i>Tetratheca glandulosa</i>	Vulnerable	1854	23.3	23.3
Brush sauropus	<i>Phyllanthus microcladus</i>	Vulnerable	95	23.2	0.0
Northern blue box	<i>Eucalyptus magnificata</i>	Endangered	44	22.7	4.6
Kiandra leek orchid	<i>Prasophyllum retroflexum</i>	Endangered	9	22.2	77.8
Tenterfield eyebright	<i>Euphrasia orthocheila</i> subsp. <i>peraspera</i>	Vulnerable	9	22.2	22.2
<Null>	<i>Grevillea obtusiflora</i>	Endangered	66	21.2	15.2
Acalypha	<i>Acalypha eremorum</i>	Endangered	38	21.1	21.1
<Null>	<i>Euphrasia arguta</i>	Endangered	29	20.7	3.5
<Null>	<i>Darwinia peduncularis</i>	Critically Endangered	78	20.5	59.0
Square-stemmed olax	<i>Olax angulata</i>	Vulnerable	39	20.5	56.4
White-flowered wax plant	<i>Cynanchum elegans</i>	Vulnerable	469	20.0	10.7
Parris' pomaderris	<i>Pomaderris parrisiae</i>	Endangered	40	20.0	50.0
Bolivia hill boronia	<i>Boronia boliviensis</i>	Vulnerable	5	20.0	60.0
<Null>	<i>Diuris eborensis</i>	Endangered	5	20.0	20.0

Note: These tables have been generated from the species sighting records held in the NSW Bionet database for species in one or more of the seven Interim Biogeographic Regionalisation for Australia (IBRA) regions affected by the fires. This included over 5 million plant records, 207,000 frog records, 273,000 reptile records, 1.5 million mammal records and 5.6 million bird records. Only species listed as threatened in New South Wales and where more than 10% of the animal and 20% of the plant records were recorded within the Rural Fire Service fire affected area are included in the analysis.

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