

Impact of fires on plants and animals

Providing advice for the recovery of biodiversity after fire



Science Division (Environment Energy and Science Group) are undertaking monitoring, mapping and species impact assessments. From these assessments, we can develop and prioritise actions that may assist the recovery of flora and fauna in areas affected by fire.

Many areas burnt in the 2019-2020 fires have also been burnt recently (for example, in the last one to seven years). For these areas, there may be species that were reburnt before they had time to recover from the previous fires and this is likely to lead to population declines and reduced recovery. High Fire Frequency is listed as a Key Threatening Process under the NSW *Biodiversity Conservation Act 2016*.

How do fires impact surviving plants and animals?

Plants and animals need time to naturally recover after the fires, so it can be many months before we can make a comprehensive assessment of the impacts of a fire season can be finalised.

Fire has influenced the persistence of plants and animals in Australia for millions of years. Both plants and animals have a range of mechanisms to either persist through fires or recolonise into recovering habitat after fire.

For plants, this may mean resprouting or seed germination after fire.

For animals, it may mean surviving a fire (in soil, under bark, in unburnt refuges) or recolonising from unburnt areas after fire.



What species and ecological communities are most at risk of reduced recovery after the 2019-20 fires?

A number of species (both threatened and not currently threatened) have had their entire global populations burnt in these fires.

Some of these have very restricted distributions. We need to closely monitor the recovery of these species over the next two years.

Some species and ecological communities are sensitive to severe fires.

What impacts the recovery of plants and animals after a fire?

The key factors that may affect the recovery of plants and animals after a fire are below:

- A large extent of the fires in some areas can mean that it takes time for animals to disperse from unburnt habitats back into burnt areas.
- High severity fires means the loss of more plants and animals at those sites, potentially less refuge areas for wildlife, and the need for longer recovery times.
- Drought conditions increase plant and animal stress, and if droughts persist, it delays recovery further.
- Any short intervals (mostly less than 15 years) between the 2019-20 fires and the previous fires may lead to declines in some species.

What immediate issues need to be addressed?

Recovery is significantly hampered by feral animals and post-fire efforts must initially be put into reducing these adverse impacts. Issues are expected to include:

- feral predators such as cats and foxes preying on native wildlife that have survived in burnt habitats
- feral grazers such as deer, horses, rabbits and domestic stock destroying vegetation recovery.

On-ground monitoring of species and ecological communities sensitive to fire (such as the Wollemi pine, rock wallabies and rainforests) is needed to assess damage and plan any necessary actions to assist recovery (should that be required).

Planting or seeding into naturally recovering areas should be avoided, as many plants species have mechanisms to recover after fire, and disturbances to their environment may hamper their recovery.

Cover photo: Burnt habitat, T Auld/DPIE

Above left to right: Resprouting after fire, T Auld/DPIE; post-fire seedling, T Auld/ DPIE, Wollemi Pine, DPIE; *Persoonia hindii* habitat sprouting after fire, A Jowett/DPIE

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