Smoke, Black Cockatoos, and Banksias

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Matter of Degrees,Series

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In November 2019, before I flew to Munich, I stayed with my parents in Armidale, New South Wales. National parks, farms, and properties between the town and the coast were on fire and, depending on the wind, the grey-brown miasma of smoke blocked out the blue sky. The town was on level five restrictions, limiting residents to 160 litres of water per person per day. My mother, who had gardened all her life, agonised over which plant to save and which to let die. We threw our bathwater over the broccoli. In the mornings, I woke with the smell of smoke in my hair.

I flew from fire into snow, rising from the deep sleep of jetlag to roofs crusted with white. I walked to find my bearings and accustom myself to the city. Wandering beneath the spare winter trees of the nearby park, I thought of the close friend, evacuated three times from the south coast of New South Wales, who loves eucalypts and watched them burn. Of a student from my environment and literature reading group who was watching her research subjects—black cockatoos—incinerated with their habitat on Kangaroo Island. Of my mother, confined to an air-conditioned house because she only has a third of the average lung capacity, and who could not breathe each time the smoke pulled over. As I repeatedly refreshed the news I also searched, amid images of charred kangaroos and communities clustered on beaches while the sky blazed beyond, for information on the place I have been researching for twenty years, the South Western Australian Floristic Region (SWAFR).

The SWAFR is a biodiversity hotspot, an area which is rich in endemic species but which is also highly threatened.**[1]** Only 2.3% of the earth's land surface contains wild biodiversity in these hotspots, yet it houses 150,000 vascular (or sap-bearing) plants, which constitute 38% of the global total.**[2]** The SWAFR stretches for roughly three

hundred thousand kilometres across the south-western corner of Western Australia. It is bordered by the Indian and Southern oceans, while to the north and east of the area, the land is arid. It is an old, weathered landscape which has persisted for millions of years. The low regeneration rate of the soil—caused by a lack of geological activity and precipitation—means that the soils are very poor in nutrients. Yet it has given rise to an incredible range of plants.**[3]**

The heritage-listed Stirling Range National Park forms part of the SWAFR. Standing on bedrock that is 2,500 to 2,900 million years old, it extends for 65 kilometres from east to west and is approximately 116,000 hectares in size. In the mid-Cretaceous period, Australia broke away from Antarctica and created an uplift of the Stirling Range, an area which has remained a vital area of floristic richness and endemism in the SWAFR.**[4]** It is populated by 1,500 plant species, which is more than the whole of the species found in the British Isles.**[5]** It is also home to several rare and endangered plants, including the Eastern Stirling Range Montane Health and Thicket Threatened Ecological Community (an ecosystem which is in danger of being lost). This community was vulnerable because of drought and dieback (a condition caused by the mould *Phytophythora cinnamomi*), as well as a fire in 2018 which burnt 86% of its area.**[6]**

On Boxing Day 2019, two separate lightning strikes started fires which eventually consumed 37,000 hectares of the eastern half of the national park, one-third of the park. The last, unburnt patches of the threatened ecological community were destroyed. The population of *Banksia montana*, which consisted of only eight mature plants, was razed. Although there were some seedlings of this plant, their survival is threatened by drought, dieback, and grazing.**[7]**

Like the bleaching events of the Great Barrier Reef, which are occurring too close together in time for the coral to recover, the razing of ecosystems through fire isn't leaving species enough time to gather themselves and regrow. Ecologist Dr Sarah Barrett of the Department of Biodiversity Conservation and Attractions in Western Australia notes that it would take up to 25 years for critically endangered species to reach maturity. If another fire was to burn plant populations in the national park that had recently been affected, they would be at risk of extinction.**[8]** Meanwhile, Brett Sumerell, Director of Research and Chief Botanist at the Royal Botanic Gardens in Sydney, refers to the fires on the south coast of eastern Australia as "like a sterilisation event."**[9]**

As I watched the news coverage of the fires from the other side of the world, I ached with homesickness and helplessness. I missed the ecosystem that supported and nourished me: my partner, family, and walks along the Brisbane River as heat ebbed from the day. Yet I was an organism with the ability to slot back into my niche; the plants of the SWAFR did not have this capacity. They had created sophisticated mechanisms for survival in nutrient-poor soil over millions of years and it was difficult, if not impossible, for them to grow back.

As the horrific summer drew to a close, Georgiana Reid, writer and editor of *The Planthunter*, an online magazine dedicated to gardening and growing, tried to quantify how many trees had burnt. She consulted Brett Summerell at the Royal Botanic Gardens for his opinion. Summerell estimated that between three and seven billion trees had burnt. "And more, again," writes Reid, "of shrubs, climbers, ground covers, fungi, moss: the microscopic and the magnificent. These are quantities hard to fathom, hard to imagine, hard to feel."**[10]**

The problem is compounded by the fact that humans find it difficult to focus on plants because they don't have faces and seem indistinguishable from one another. They also don't move fast, and humans are trained to pay attention to movement. But to overlook plants is madness: they produce the sugar and oxygen which keep us and our fellow beings alive. As Summerall observes, "the best way to help wildlife is for them to have an ecosystem that they can function in. That's plants." Perhaps it is time to emphasise, as humans once did, the communal over capital and the nourishment of the vegetal world that underpins all human life.

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[1]Norman Myers et al. "Biodiversity Hotspots for Conservation Priorities," *Nature* 403, no. 6772 (2000): 853–858.

[2]Stephen D. Hopper, Silveira, Fernando A. O. Silveira, and Peggy L. Fiedler. "Biodiversity Hotspots and Ocbil Theory," *Plant and Soil* 403, no. 1–2 (2016): 167–216, p. 168.

[3]S. D. Hopper and P. Gioia. “The Southwest Australian Floristic Region: Evolution and Conservation of a Global Hot Spot of Biodiversity,” *Annual Review of Ecology, Evolution and Systematics* 35, no. 1 (2004): 623–650, p. 628.

[4]Hopper and Gioia, “The Southwest Australian Floristic Region,” 631.

[5]Australian Government Department of Agriculture, Water and the Environment. €˜Stirling Range National Park.’ https://www.environment.gov.au/heritage/organisations/australian-heritage-council/national-heritage-assessments/stirling-range

[6]Sarah Barrett, “Stirling Range National Park Fires 2019. Conservation values – preliminary summary of impacts,” Unpublished report, February 2019.

[7]Michael Traill, “Plant Species on the Brink,” *Albany Advertiser*. January 30, 2020, 10–11.

[8]Traill, “Plant Species on the Brink,” p. 11.

[9]Georgina Reid, “Seven Billion Burnt Trees,” *The Planthunter*, February 13, 2020. https://theplanthunter.com.au/botanica/seven-billion-burnt-trees/

[10]Reid, “Seven Billion.”