

For Peat's Sake

– The Necessity of Keeping Cobrico Wetland Wet

Kirsty Hawkes gets stuck into peatbogs and swamps which, without water, can all too easily become fen fires and peat pyres.

It's easy to get bogged down in terminology when it comes to peat. When Mark Gunning, CFA incident controller for the Cobrico Swamp fire, was asked to present a paper at the International Association of Wildland Fire – Fire Behaviour and Fuels Conference 2019 in Albuquerque, USA, he found over ninety definitions. For me, coming from Scotland, the term peat is inextricable from the word bog, so I was pleased to find this explanation in the National Geographic:

Peat forms in bogs. Bogs are a type of wetland with a high acid content. Like all wetlands, bogs are inhabited by marshy plants, including trees, grasses, and moss. The bog's acidity prevents this vegetation from fully decaying. This partly-decayed organic material builds up in bogs. Over millions of years, it becomes peat. In certain circumstances, peat can be an early stage in coal formation. Most of the time, however, peat is a unique material.

Peat covers between 3% and 5% of the earth's surface depending who you ask. The biggest areas are in the northern hemisphere especially Canada, but peat bogs can be found in New Zealand, Indonesia and South America.

Nearly three decades ago when I was a public relations officer for Scottish Natural Heritage, Scotland's government agency for wildlife, I was asked to extol the wonders of peat bogs. These threatened habitats were,

I wrote, "treasure troves" of biodiversity, home to many rare plants and animals and "encyclopaedias of land use and climactic changes". Peat bogs, more commonly called peatlands now, were a hard sell then and still are.

All in a name?

The use of the word "bog" is symptomatic. In the UK it is slang for toilet, "bog standard" means "ordinary", "bog off" is self-explanatory, "bogging" is a Scots expression for "disgusting", "bog trotters" is a derogatory term for Irish people and try typing "bog" on your iPhone – the emoji it supplies says it all. Unsurprisingly the word derives from Gaelic and Irish for soft, moist and flexible, hence the word "bogged" for getting stuck. Perhaps having more peat and more Scottish settlers, in New Zealand areas of peat are described as bog, but in Australia the word "swamp" is used. Etymologically rooted in an old Germanic word for "sponge" or "fungus", "swamp" was popularised in the USA, particularly the Deep South, and as such, like "bog", suffers from negative connotations – think duelling banjos and alligators.

Barb Cowley lives next to what is listed on most maps as Cobrico Swamp Conservation Reserve, but she would rather the name was changed to Cobrico Lake and Wetland Wildlife Reserve. She says: "The name just doesn't fit. I don't like the word swamp. It suggests a boggy area. A lot of the land is not that wet, and the lake gets missed out altogether in the name. It's a permanent lake."

Barb does however refer to this part of her land as “the scrub” and in this she is technically correct. According to the Victorian government the habitat represented by Cobrico Swamp is “swamp scrub” or EVC53 where EVC is “ecological vegetation classification.” Once again hardly a sexy name, but according to government sources only 5% of the Swamp Scrub present at European settlement remains in Victoria.

But whether we call a wetland a marsh, mire, quagmire, soak, bog, fen, swamp or as Roald Dahl would have it a “quelchy quaggy sogmire”, if it contains peat, in a drought-prone country like Australia, it presents a fire hazard. This then is peat’s biggest PR problem here.



2019 Aerial view of what is officially called Cobrico Swamp Conservation Reserve, but Barb Cowley prefers to call Cobrico Lake and Wetland Wildlife Reserve.

Peat for Power and Plants

When I first heard that the peaty Cobrico Swamp was on fire, it made no sense to me. Such places are wet where I come from, but due to drought and drainage, this is not the case in Australia. That the fire persisted for nearly seven weeks was more understandable. I grew up with peat fires

which stayed lit all night in the family hearth. That we were inhaling small particulate matter and potentially impacting our health was unknown to me.

According to the National Geographic Finland, Ireland and Scotland are the biggest consumers of peat as a fuel. South West Victoria was heavily settled by Scots and Irish, but with so many trees to burn, using peat as a fuel never caught on. Ireland currently has three peat fuelled power plants, but reliance on peat power has decreased since its heyday in the 1960s when peat provided 40% of Ireland’s electricity. In 2016 it produced about 8%, but 20% of the country’s carbon emissions, creating more CO₂ than coal and twice as much as natural gas.

The most familiar use for peat in Australia is in gardening, but at a growth rate of 1cm per 1000 years it’s hardly a renewable resource. Over the past few decades some countries have moved to phase out the use of peat in horticulture, but nowhere has this actually happened and Canada remains the biggest player in the industry. Some commercial production occurs in Australia largely in Tasmania where only 0.006% of land is sphagnum peatland, the preferred type for gardening.

Peat Beats Climate Change

The English National Trust which owns extensive historical gardens has been peat free for many years. On the Trust’s website peat is extolled as “of great importance to our planet:

- as a carbon store – peat holds more carbon than the combined forests of Britain, France and Germany
- for wildlife – many scarce species inhabit peatlands
- for water management – peat holds up to 20 times its own weight in water

- for archaeology – peat preserves a record of past vegetation, landscapes and people.”

According to the UN the 3% of peatlands which cover the Earth’s surface store twice as much carbon as the world’s forests which make up about 31% of the land. They are a massive carbon sink which should be nurtured.

The Scottish government via Scottish Natural Heritage sees peat as part of the solution to a warming planet. In February 2020 £250m of funding was announced for peatland restoration over the next ten years, as a “clear nature-based solution to the climate crisis.” Peat PR in Britain has come a long way since my day. Its image in Australia is rather different, but not without its advocates.

Mark Bachmann of the Nature Glenelg Trust is passionate about peat and wetlands.

“Nearly 70% of wetlands in western Victoria have gone since settlement and even the ones left have been modified by drainage. The southeast of South Australia and south-western Victoria would have had thousands of hectares of permanently saturated peat. After co-ordinated drainage programs to open up much of this land for agricultural development, only a fraction is left in its undrained state. As our climate gets drier, it is vital that we restore wetlands, not only as wildlife habitat and carbon stores, but to greatly reduce both the risk and the impact of bushfires. And of course, fully hydrated peat wetlands stay wetter for much longer than ordinary wetlands, even in a drought.”

(Interestingly Mark thinks that Cobrico Swamp might more properly be described as a “fen” than a “bog” due to its hydrology. He makes a good point, but for the purposes of this article he has kindly agreed to “bog-off.”)



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Peat Pyres

But once peat has dried out it becomes a tinder box capable of creating a bushfire which is difficult to put out and extremely toxic. Colac-based Mark Gunning has been a fire fighter since 1980 and has taken a special interest in peat pyres. He encountered his first near Hamilton during the Ash Wednesday Fires of 1983 and since then has been battling them with greater frequency.

“Each peat fire is different,” he told me, “but they are always hard to put out and often require expensive earthworks and technology to meet complex challenges. Yeodene Peat Swamp, near Colac, has been burning on and off for at least 25 years. Fires can go on burning underground without anyone knowing for years and then one day conditions will be right, and they’ll kick off on the surface. It’s like tooth decay.”

A rumour circulated around the Cobrico fire that expertise had to be called in from Tasmania in order to subdue the fire. Mark clarified this:

“Australia has a limited capacity of specialist vehicles called CAFS (Compressed Air Foam

Systems) which are good for extinguishing peat fires. The Australian Capital Territory and Tasmania are well advanced with CAFS capability and are often called upon to support Victorian firefighters. On this occasion the CAFS vehicle came from Tasmania.”

Mark’s expertise in peat fires took him to Gippsland in the summer of 2019/2020. Of the 19 firefighters tackling one peat fire there, all were treated and some hospitalised for smoke inhalation.

He said: “Peat fires release more carbon dioxide and monoxide than regular bushfires. Also, it’s heavy work where you are closer to the source of the fire and for longer periods. We all recovered though.”

Of the St Patricks Day Fires, eleven were peat fires, three of which were significant. These were at Lake Elingamite which burned for four and a half weeks, the area between Lake Bullen Merri and Lake Gnotuk near Camperdown which took two weeks to suppress and at Cobrico where high levels of carbon monoxide were detected near the fires and fine particulate matter for up to 5km. Cobden’s schools and early childhood centres were closed, and 58 patients/ residents were evacuated from Cobden’s hospital and aged care facility.

Peat’s Flora and Fauna

No such evacuation was possible for the plants and animals which call Cobrico Swamp home. The rare and beautiful Swordgrass Brown Butterfly (*Tisiphone abeona*) was photographed here in 2005. This species has eight subspecies. All are associated with the wetland loving plant genus *Gahnia* such as tall saw-sedge (*Gahnia clarkei*) which is listed in a botanical survey of Barb Cowley’s property carried out by botanist, Geoffrey Carr on 31 March 2009. Geoffrey describes the habitat as “a structurally intact Swamp Scrub site” but points out that it is surprisingly dry and thus lacking in the biodiversity he expected. He

did however record one rare plant species, the Leafy Twig Sedge (*Cladium procerum*), and one threatened orchid, the Small Sickle Greenhood (*Pterostylis lustra*). It is not known whether these plants still grow there. The latter grew under the Woolly Tea Tree (*Leptospermum lanigerum*) where much of the ground has collapsed since the fire and is scarred with holes like a battlefield, making it very hard to walk on and extremely fragile.



Leafy Twig Sedge
(*Cladium procerum*)



Small Sickle Greenhood
(*Pterostylis lustra*)

This is why drones were used in May 2020 to distribute 32 kilograms of native seeds over 40 hectares of burnt ground. Using planes or helicopters would have been much more expensive and seeds would have scattered well beyond the targeted area. The five drones were able to release seed only 2-3 metres above the ground. It is the first time this type of technology has been used in Australia for peatland

rehabilitation. The project, which was managed by Heytesbury District Landcare Network, was funded by DELWP at a cost of \$80,000 and includes funds for continued monitoring and a follow up survey. Seventeen species of seeds were flown and sown. These included trees such as Scented Paper Bark (*Melaleuca squarrosa*), shrubs like Myrtle Wattle (*Acacia myrtifolia*) and grasses including Wallaby Grass (*Austrodanthonia caespitosa*). Geoff Rollinson of HDLN is especially keen to compare the areas which have naturally regenerated with those that have been assisted by aerial seeding.

Geoff and Ross Martin of DELWP continue to seek funding for research and restoration of peat areas and hope to engage a university on the subject. As Geoff says: "Historically farmers have seen wetlands as an obstacle to productivity. Drainage is still going on today. The wetland at Cobrico has shrunk over the decades. When peat is present taking out the water turns them into a fire hazard. Restoring wetlands would be a good strategy for increasing the resilience of the land and keeping more carbon in the soil."

Meanwhile as a result of the 2018 peat fires Corangamite Shire has commissioned local mapping of peat swamps to be better prepared for future fire events. As part of this, the fire committee has also taken part in a peat bushfire workshop. The shire has shared its methodology with other councils. Surf Coast and Colac-Otway look likely to follow suit. Mapping peat areas will certainly help when it comes to fighting a bushfire on the site but replenishing these sites with water would be a preventative measure.

As veteran firey, Mark Gunning, says: "I'm a conservative kind of person, but the scale of bushfires I have attended in the last ten years quadruples what I have experienced in the previous thirty. There's something going on with the climate and it's not good. Peat fires are getting worse as things get drier. We shouldn't be letting farmers take more water out of these wetlands. It's just exacerbating the problem."

If peatland continues to be regarded as a fire hazard rather than a valued wildlife habitat and watery haven from fire, peat's public image will continue to be problematic. If it's all in a name, then let's rename these



Preparing the drones for seeding at Cobrico.

areas. In Canada, they use a Cree Indian word for bogland – muskeg. The Cobden area is on Djargurd Wurrung land and the clan associated with Cobrico Swamp were called Netcunde. This wetland would have been much larger before drainage by early farmers. What then did the Netcunde call

the peat bog/swamp/fen which would have been such a central feature of their home? What does Cobrico, spelled Kobrileo on an 1853 pastoral run map, actually mean? Let's find an Aboriginal word and rebrand the peat bog.



Cobrico Swamp in 1853



Cobrico Swamp in 1866



Cobrico Swamp in 1880



Cobrico Swamp in 2014.

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