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The road to extinction

Introduction

When it comes to discussing the plight of threatened species, it's Australia's fauna that springs to mind. However, the sad reality is that many of Australia's equally unique plants are also in decline.

While our much-loved animals and birds receive most of the attention, our flora has been largely overlooked, until now. As the year from Hell closes, a group of scientists have just released findings showing that Australia's threatened plant species have declined by an average 72% over the last 20 years.

Those findings were the result of research, undertaken by scientists from Australia's top ten universities, the Australian Wildlife Conservancy, and citizen scientist groups. Together they have used the extensive information available from Australia's 2020 Threatened Species Index, which combines data from almost 600 sites, to produce their findings.

72 % over just two decades is a huge loss, but comes as little surprise to those working on the 'front line' over that period, and it's not only threatened species that are experiencing these trends. From the outset, it should be recognised that there are thousands of plant species across Australia that are headed for extinction if trends are not reversed, but are yet to be listed as threatened. This is because the gathering of evidence necessary to nominate a species to be declared threatened is time-consuming, and as governments do not fund that work, the task mainly falls to concerned ecologists who undertake it at their own expense.

Species' decline invariably starts with local extinctions, something I have personally witnessed, and most have been the result of fire, or more specifically too frequent fire. The repetitive burning of the landscape for pasture management or hazard reduction, is having a devastating impact, as many species do not have time to mature and produce seed before they too are burned, and with no soil seed bank left, that is when the extinction process begins.

The following details the likely local extinction of two species I have documented in recent years.

1. *Ozothamnus argophyllus*

About 20 years ago, my wife and I came across a specimen of Spicy Everlasting (*Ozothamnus argophyllus*), while undertaking a flora survey on vacant crown land, that later became the Chambigne Nature Reserve. It was just a single plant, and growing well north of its known range, so a specimen was sent to the Sydney Botanic Gardens for confirmation. Today, that specimen is held at their herbarium, and recorded on the “Australian Virtual Herbarium” (AVH) website. My wife’s photograph of the plant also appears on the “PlantNet” web site.



Spicy Everlasting - *Ozothamnus argophyllus*

Within a year of first finding the plant, it had flowered and died. Whether or not it produced seed is unknown, but a major bushfire burned through the area soon after, so any seedlings may well have been burned. We monitored the site for years, but have never seen the species since, there or anywhere else in the Clarence Valley, so it’s assumed to be locally extinct.

The closest other record of the Spicy Everlasting, one backed by a voucher specimen, was collected almost 70 years ago at Guyra, 130km southwest of Chambigne, and the second closest was a specimen collected at Port Macquarie in 1891.

The Spicy Everlasting isn’t rare or threatened, in fact it is relatively common south of Wollongong, and its range extends right along the coast to Melbourne, with even a couple of records in Tasmania, and on several of the Bass Strait islands. Nevertheless, assuming those populations at Guyra and Port Macquarie still exist, our local extinction represents a minimum contraction of the species’ known range, of at least 130km. That is how extinction begins.

2. *Dodonaea viscosa subsp spatulata*

An almost carbon copy of this story, is that of a Sticky Hop Bush species, *Dodonaea viscosa subsp spatulata*, which we photographed around the same time.



Dodonaea viscosa subsp, spatulata

Again, the species is common elsewhere in Australia, but as the Sydney herbarium had no previous records of this species from the North Coast bioregion, we again sent them a specimen for confirmation. That record also appears on the AVH and PlantNet websites, one of only 3 from this bioregion.

Again, the nearest recording was on the Tablelands, and that specimen is held at the Melbourne Botanical Gardens, and was collected 160 years ago.

The collector on that occasion was a German medical man, Hermann Beckler, who gathered plant specimens on his extensive travels between Port Macquarie and Morton Bay in the late 1850s.

Like the Spicy Everlasting, our small leaved Sticky Hopbush was killed by fire within years of our finding it, and has never regenerated. There may well be more specimens of both species out there waiting to be discovered, but until they are found, they're assumed to be locally extinct.

Discussion:

This process is happening to literally thousands of plant species across the country, it's happening all around us, and we humans are 100% responsible.

These downward trends will not be reversed without a massive, and sincere, commitment from all of society, but that will require political leadership and unity, something we haven't seen in Australia for a very long time. It's not as though our leaders are unaware of the problem, the government's own information sheets acknowledge the critical importance of maintaining biodiversity, they just don't seem to care!

The readily available information sheets provided by the government include the following, explaining that: *“Plants are an important part of all ecosystems. They use sunlight to make food and release oxygen which is necessary for all living things. Plants provide shelter, food and breeding sites for animals. They also protect soils from erosion caused by wind and water. People depend on plants for much more than food and oxygen. Building materials, medicines, paper and clothing can come from plant products. Unfortunately, some plants have become extinct before their potential usefulness was known”.*

“Loss of native vegetation and fragmentation of habitats are major threats to ecological communities. As natural vegetation is removed and becomes increasingly fragmented, the diversity of plants and animals is reduced. The decline in animal and plant species affects the natural dynamics of ecosystems. It is important that the biological diversity of ecosystems is maintained to ensure the survival of all living organisms”.

“Cattle, horses, sheep and goats browse selectively on particular plant species and compact the soil with their hard hooves, thus preventing seedling growth. Erosion caused by loss of the soils' natural vegetative cover, the use of chemicals and declining water quality also affect the local ecology. Fire is a natural event in the Australian environment. However, changes to fire frequency and intensity, and the season fires occur, affect plant species abundance and composition”.

Unbelievably, since 2000, with all these facts clearly spelt out, governments across Australia have relaxed or rolled-back laws that protect native vegetation. Land-clearing has surged, vegetated buffer zones along creek and gully lines have been reduced to allow logging to occur much closer to waterways. More frequent burning has actually been mandated in some jurisdictions for bushfire hazard reduction, and in NSW, landowners are now allowed to clear 25m wide strips along boundaries. Again, this is supposedly to protect against bushfire, but could result in as much as 10% of forests being cleared in areas where large lot residential subdivisions (100 acre lots) are common, such as the Clarence Valley.

Much of the clearing has been done to increase the nation's cattle and sheep populations, and actively supported by government agencies such as Local Land Services (LLS) in NSW. That state too, has granted feral horses protection by law in some of Australia's most fragile Alpine habitats. Across the north coast, LLS has repeatedly approved the clearing of heavily logged forest, deeming it to now be 'regrowth forest', after previously granting the permission log.

Australia has tens of thousands of native plant species, the majority of which are in decline, and it is our mismanagement of nature that is driving extinctions of both flora and fauna. It's time to act and get serious about conservation.

Compiled by John Edwards (Research Officer)