

Contexts of the Perth Airport Bushland

A talk on the Perth Airport bushland given to a seminar held by the Urban Bushland Council of WA Inc. on Saturday 18 September 2004, given by Malcolm Trudgen.

Why contexts?

The contexts of an area of native vegetation define its values and the possible outcomes for it. A careful review of them gives an understanding of conservation value for both flora and vegetation. There is overlap between contexts, so I have put some in brackets.

Time context

2004

The flora and remnant bushland at the airport is the result of the interaction over long periods of time of the available flora with the physical environment. The current land surface (give or take a bit of erosion, deposition and leaching) has been there since at least mid- to late Pleistocene, or up to about 1 million years.

The degree of clearing of the landscape is a result of the time since European settlement (modified by other factors such as location and technology).

Our knowledge or understanding as a society of the conservation value of the flora and vegetation is also set by time, it is valued more now than a hundred years ago and will be valued much more in 100 years, if it still exists. However, some people misinterpret their personal lack of knowledge (or understanding) of the conservation value of vegetation and flora as the absence of such value and, as the overall non-existence of that knowledge.

Geographic context: very broad (very broad uniqueness context)

Australia

The land time forgot – *the isolated Gondwana continent*, the others have crashed into other continents, losing some to a lot of their “Gondwananess” in the process. As a result of its isolation and the divergence of the flora and fauna through evolution over the long time since Australia separated from the rest of Gondwanaland, the flora and vegetation types found in Australia are mostly restricted to the continent. The exceptions are mostly tropical (we are close to crashing also, but it will be a few million years).

Geographic context: intermediate (broad uniqueness context and flora diversity/extinction context)

The south-west of Western Australia

Well known as a region of high flora diversity and endemism. Also, regrettably, well known as one of the extinction hot spots of the current, man-made, rapid mass extinction process. Given the approximately 80% clearing of this area we are likely to lose about 30% of the flora found in the south-west over the next 100 years or so. [Convert that to prematurely losing one in three of the people in your extended family, and you will understand how biological scientists view it.] The clear inference is that any loss of vegetation will further exacerbate the extinction process. To redress this extinction problem, that is to stop it or significantly slow it we would need to not only end land clearing, but also rehabilitate sufficient areas to make populations of species at risk due to population size reduction viable.

Geographic context: regional (fine/moderate uniqueness context)

The southern Swan Coastal Plain

Highly cleared, especially south of the Swan River and along its eastern edge where only about 3% of the landscape is uncleared. Perth Airport and its bushland lie on this eastern part of the Plain, south of the Swan River. There is not one large national park or nature reserve on the Swan Coastal Plain south of the Swan River; the largest is Yalgorup National Park, which is coastal, and has no vegetation and little flora in common with the bushland at Perth Airport.

Geological/soil context

Perth Airport lies on the interzone between the Bassendean Dune System (aeolian dunes of mid- late Pleistocene age) and the alluvial (often clayey) soils of the eastern side of the Swan Coastal Plain (Guildford Formation/Pinjarra Plain). This context produces a very varied environment for flora and vegetation. The result is a significant diversity of both flora and vegetation for the size of the area of bushland remaining at the airport.

Scientific context

Definition of rare flora inadequate: We are considering species over their range in the State (State classification) or over their whole range (Commonwealth classification) when they extend out of the State, when we should be considering them on regional geographic contexts (which would often be larger than many European countries). If we did this properly, much more of the flora at Perth Airport would be considered rare. The point here is that many species that were once abundant on the southern Swan Coastal Plain are now relatively rare there.

Definition of vegetation types inadequate:

We (well the Government, not me) are defining “vegetation types” (“floristic community types”) on the Swan Coastal Plain so broadly for much of environmental impact assessment and almost entirely for definition of rare/threatened vegetation that I am not even sure we should talk about them as vegetation types at all. If we did this properly, it is very likely that all the vegetation at Perth Airport would be classified as rare and threatened and would qualify for listing on the State and Commonwealth lists. This is a serious problem, and I am somewhat surprised that the relevant study has been used for such purposes in ways that there is very significant evidence that it is inadequate for. To clarify this, I am critical of the interpretation and use of the document rather than the quality of the work per se.

What vegetation and flora is actually at the Airport

Flora

At least 295 native species. Of these, two are declared rare and seven are priority species. At least three species are uncommon on the coastal plain (regionally rare”?). There are also 34 taxa associated with the eastern side of the Swan Coastal Plain (does this include others that we should consider regionally rare? Probably.).

Vegetation

At least seven and possibly nine of the very broad “vegetation types” commented on above. This is quite high for the area of vegetation (approx. 629 ha.) Two of those confirmed as present are considered endangered and one vulnerable, another inferred as present is vulnerable (under the State classification).

At least 22 vegetation types defined on a structural basis from within the broader units above. Even this classification is very broad.

A conservative estimate would be that we should consider at least half the vegetation present as endangered. Detailed analysis would probably indicate that more of this vegetation is very restricted in distribution.

Moral context (understanding)

2004

That's odd, that's the same as the time context.

What was acceptable as "moral" behaviour in 1804 or even 1904, is often not acceptable as "moral" behaviour in 2004. In 1804 many more people thought slavery, or even genocide, was acceptable than do in 2004. The problem is that the average may have changed, but the range hasn't. A similar problem applies to the destruction of native vegetation and flora. While most people are now in favour of conservation, a part of the community is living in the past. Just as slavery is not dead, there are those who will resolutely try to avoid the obvious in relation to conservation: that is that some areas of vegetation and flora are more important than personal desire for gain.

This is a considerable problem in a wider sense, with consultant shopping (the hire of opinions for anything) a significant problem in environment protection in Western Australia.

To put the issue bluntly, it is not morally acceptable to use whatever means possible to get around the fact that an area of vegetation has values that justifiably override the desire for development. The excessive clearing of the past occurred in a different context, and it is time to grow up and acknowledge that the context has changed.

Valuation context

It's a bit of a mess

There is no universally agreed way to put a dollar value on flora and vegetation, although it is possible to make an approximation of "replacement value" for vegetation based on the cost of growing the same number of individual plants of each species present in the area to be valued and planting them out (about \$2-\$4 per plant, not including the cost of the land to put them on). However, this undervalues the vegetation as it does not replace the same genetic composition and does not include intangibles, or replace associated fauna (which could easily cost as much again, as fauna includes insects). It is hard to see why a replacement value based on such a methodology, should not be accepted by all as a minimum dollar value (see below table).

What we do have are processes (heritage assessment, environmental protection laws) that are supposed to put "higher use" values on nature that override dollar values. The table below attempts to put these issues in context. It should be understood as an attempt to provoke thought and to give an understanding of valuations, rather than as a definitive dollar valuation.

Table 1: Comparative valuation: the Mona Lisa and the Perth Airport flora and vegetation.

	Mona Lisa	Perth Airport Flora	Perth Airport Vegetation
Current valuation: auction/official valuation	Say \$200 to 400 Million at auction	Some species rare or priority flora, many poorly conserved	Has been identified as of national heritage value
Alternative current valuation(s)	Most people would keep their kids if offered the choice of the kids or the painting.	Varies from nothing (red-necks) to priceless (biological scientists, green-necks).	Varies from nothing (red-necks) to priceless (biological scientists, green-necks).
History	About 500 years	As major groups Angiosperms 70 million years, fungi (etc) at least same. Individual species say 100,000 years to more than 1 million years (each).	About 1 million years, including adaptation to variations in climate over that time and adaptation of the species to each other and the local environment.
Replication	Very few da Vinci paintings remain.	The overall populations of most of the flora species found at the airport have been dramatically reduced over their original range.	A few percent of the original extent of the broad vegetation types at the airport remain. There are probably no exact replicates (or even replicates of most at the plant community level).
Cost of a good fake from scratch	< \$10,000 (in oils)	Rebuilt on the lines of “Jurassic Park”, if it was possible, say \$50 million a species. About \$15 billion. Not possible with current knowledge. Obviously, many of the species exist elsewhere, but not genetically identical.	Buy the land, create the physical environment, grow the plants in a nursery, plant, weed, maintain for 100 years or until stable). \$13,900,000 for plants (assuming seed is available). \$300,000,000 for land. \$50,000,000 for “creation”, planting, maintenance (a guess) Current description of vegetation and taxonomy of co-adapted fungi, bacteria, insects not adequate to do it. Add \$100 million to create the plan. Ignores

			intangibles.
Cost of a poor fake	\$25 at a print shop	Source the species from elsewhere, or use similar species. Say \$50,000 for seed – but you then need to grow the number of individuals present (probably more than 10 million). Say \$20-40 million (and you need somewhere to put them as well).	Say 20% of the figures above.

A low estimate of replacement value would be: 10,000 plants per hectare at \$4 each planted (629.5 ha x 10,000 plants x \$4 = \$25,180,000). But would have to have active maintenance (plant replacement, weed control etc) for many years. So double it = \$50,360,000). This would still ignore intangibles (it would be a fake) and fauna. Double it for the fauna (\$100,720,000). Factor in intangibles (multiply by a figure of choice between two and ten) \$201,440,000 to \$1,007,200,000.

It might be better (cheaper) to leave it alone.

Legal context

What a mess.

It's Commonwealth Land. So the W.A. acts don't apply

The vegetation is listed under the Heritage Act (Commonwealth).

The Environmental Protection Act (Western Australian).

The Wildlife Act (Western Australian).

The Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The Commonwealth Constitution is silent on conservation, and the Act flogging off the Perth Airport obviously did not provide adequate protection for the fauna, flora and vegetation there.

However, it is interesting to speculate that as:

1. Under section 51 of "An Act to constitute the Commonwealth of Australia" [The Constitution], "The" Parliament shall, subject to the Constitution, have power to make laws for the peace, order, and good government of the Commonwealth with respect to: -" [39 items from trade, to property acquisition, to currency and external affairs].
2. The Parliament has passed Heritage Legislation that it presumably considered was "good government of the Commonwealth",

that any part of the legislation allowing the sale of the airport/lease of the land that allows the destruction of heritage value there is unconstitutional. If it is not, it damn well should be. The logical alternative would be that the Heritage Act was poorly founded. I'm (knowingly) probably being hopelessly naïve here. My point is that

those who want to protect vegetation and flora need to see the law as an area that needs reform. And so should Government.