Submission to the Senate Standing Committees on Environment and Communications

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My relevant background

While my formal qualifications are in psychology, I have followed the research literature into futurology since 1972, and my private (unpublished) research led to very similar conclusions to that of the Club of Rome. As part of this, I have a good understanding of the history of previous extinction events.

We are in the 6th extinction event

There is now well authenticated and convincing evidence that humanity is destroying the web of life that keeps us alive. Extinction rates are assessed at 1000 times the "background rate" or even considerably higher.[1]

Ceballos et al. (2017)[2] have demonstrated that even many species that are not technically endangered are facing huge drops in numbers.

People tend to dismiss individual extinctions. So what if Leadbeater's possum is no more? Or if we lose some snail, or a bird with a funny call, or if drought destroys an isolated pocket of remnant rainforest? This is because there is no general understanding of the high degree of connectedness of all life. Here is a metaphor to demonstrate this: I find a moth hole in a jumper. So what, it's only a little hole, and there is plenty of jumper left. But the thread has been cut there, and will unravel. And if there is one moth hole, there will be others. Do nothing, and you'll have no jumper.

Extinction of the Bramble Cay melomys is perhaps a "so what" event. It is however a visible symbol of a very wide-ranging phenomenon that affects millions of organisms. It's not just the extinction of a species that is of worry, but the assault on its entire web of life. For example, if Leadbeater's possum is not protected, Victorian forests will probably suffer irreversible collapse the next time there is widespread bushfire.[3] That is, protection of this species is a tool for wider ecosystem protection, and the same is true for many other examples.

Causes

Climate change

There are people, including politicians, who "don't believe" in climate change. It is not a matter of belief, but of evidence, which is overwhelming. An excellent plain language summary of this evidence is offered by Meissner and Alexander.[4]

Apart from the 5th extinction event, which was probably caused by a giant meteorite, all the others were due to increased amounts of methane and carbon dioxide in the atmosphere. Previous such increases were due to extended, very large scale volcanic action. Current changes are caused by humans. This is demonstrated by the finding that until the 1970s, there was close correlation between sunspot activity and global temperature, but since then,

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[1] https://www.biologicaldiversity.org/programs/biodiversity/elements_of_biodiversity/extinction_crisis/

[2] http://www.pnas.org/content/114/30/E6089

[3] https://onlinelibrary.wiley.com/doi/abs/10.1111/aec.12200

[4] https://theconversation.com/mass-extinctions-and-climate-change-why-the-speed-of-rising-greenhouse-gases-matters-56675

atmospheric greenhouse gases have completely swamped sunspot effects.[5]

Examples of the effects of climate change are the repeated devastation of the Great Barrier reef, of the great kelp forests of southern Australia, and of the northern mangroves.

While variations in the weather always have a complex network of causes, climate change moves averages toward extreme weather events. "100 year floods" are now regular occurrences. The current drought in NSW, increased bushfire severity and extension of the bushfire season, cyclone frequency, severity, and southward range, are all worsened by climate change. People who live close to the land, such as farmers, have noted the obvious trends.[6]

Animal extinctions are one of the consequences.

It is entirely proper for this Senate enquiry to focus on the laws relevant to protecting Australian species from extinctions and catastrophic decline in numbers. However, this cannot be divorced from global trends such as climate change. Measures to protect our wildlife need to be part of a systemic, coordinated effort to save all life on Earth -- humans included.

Plastic

Marine life is devastated by plastic waste, as are birds, and even land animals. I have personally rescued snakes, possums and other animals entangled in waste.

One of many reports states that 700 marine bird species are severely affected.[7]

Pesticides

All animals, including humans, now live in a sea of toxic substances. Despite industry attempts to hide the evidence, the effects are now becoming increasingly obvious. Two recent examples of evidence are Perro & Adams (2017)[8] and McBirney et al. (2017)[9]

In summary, the hundreds of pesticides and other human-made toxins are affecting our gut biome (the bacterial colonies without which we cannot live), and are modifying our genes, affecting future generations.

These effect apply to all life, including Australian species. We cannot protect them without protecting everyone.

Many other causes

Broadscale, chemical-intensive agriculture causes multiple damage (e.g., Kristen Blann).[10]

Deforestation for various reasons including native forest clearfelling is particularly destructive (e.g., the work of David Lindemayer of the ANU).

The acoustic effects of oil exploration are intensely damaging to cetaceans (e.g., Peng, 2015).[11]

Small particle-size carbon from coal mining, transport and burning, and coal ash, has multiple adverse health effects on people and other animals (e.g., Munawer, 2017).[12]

Solutions

The problem is not specific to any particular species, to any geographic or climatic area, but is global and systemic. Nevertheless, individual actions are needed for each kind of threat, but are guaranteed to be insufficient to slow and preferably even stop the current global tragedy. Major system change is also needed.

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[5] http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/solact.html

[6] https://www.theguardian.com/environment/2018/aug/28/drought-policy-must-reflect-climate-change-says-former-farmers-chief

[7] https://www.natureworldnews.com/articles/12846/20150219/update-700-marine-species-threatened-by-plastic-debris.htm

[8] Perro, M. & Adams, V. (2017) *What's making our children SICK?* Chelsea Green Publishing

[9] http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0184306

[10] https://defenders.org/publications/habitat_in_agricultural_landscapes.pdf

[11] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4626970/).

[12] https://www.sciencedirect.com/science/article/pii/S2300396017300551

Specific actions

Marine life in the **Great Australian Bight** needs to be protected by banning all oil exploration there. This area is of particular importance to several whale species, who are devastated by sonic booms. An oil spill in this vulnerable ecosystem would be a major ecological and economic disaster for South Australia, Victoria and Tasmania.

The **Great Barrier Reef** needs to be protected from industrial fishing, and from incursion by ships. An oil spill in its vicinity would be immensely damaging to marine life. In particular, the forecast increase in coal transports has a high probability of causing destruction. The ARC Centre of Excellence is one of many sources of relevant information.[13] The Abbott Point coal terminal must not be expanded. In fact, ideally, it should be closed.

Another source of damage to the Reef is runoff from agricultural practices, as recognised by the Queensland government[14], and by large scale, often illegal forest clearing.[15]

Victoria's native forests are in desperate need of protection.[16] The establishment of the Great Forest National Park is a necessity, not only to protect the unique, threatened fauna, but for dozens of other reasons, including reducing the increased probability of severe wildfires.

Currently, almost all logging in Australian native forests ends up as wood chips, mostly for export. This is the result of a number of past agreements between businesses such as Nippon Paper and governments, and is no longer appropriate to our current circumstances.

There is now enough mature plantation timber available to replace most or all native forest logging.[17]

Change in Commonwealth and State laws is urgently necessary to protect the remnants of our forests.

General actions

Climate change

The occurrence of climate change is not a matter of belief or opinion, but of scientific fact. Refusing to take action is the ultimate criminality against all species, including native Australia wildlife -- and humans.

In a sane world, humanity would be on the equivalent of a war footing to defend life on this planet.

As a matter of urgency, we MUST reduce the release of methane, carbon dioxide and other greenhouse gases into the atmosphere.

Since climate change has a time lag of decades, current global warming is the result of increases in greenhouse gases last century. We must remove carbon dioxide from the atmosphere through measures such as large scale tree planting, regeneration of topsoil, and supporting relevant research.

The Great Barrier Reef and other coral reef systems are guaranteed to die if the use of thermal coal continues.

All coal mining in the Galilee Basin must be prohibited. Australia's aging coal fired power stations must be phased out, and replaced with environmentally less damaging sources of electricity.

The current debate on energy pays no attention to **energy conservation**: reduction of use. This is the cheapest and most effective way of protecting our future. Governments can do a great deal in education to induce widespread behaviour change, subsidies for reduced power use, and the adoption of relevant technologies.

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[13] https://www.coralcoe.org.au/media-releases/coal-shipping-threat-to-great-barrier-reef

[14] https://www.qld.gov.au/environment/agriculture/sustainable-farming/canefarming-impacts

[15] http://www.abc.net.au/news/science/2018-05-25/why-is-land-clearing-bad-news-for-the-great-barrier-reef/9783420

[16] https://onlinelibrary.wiley.com/doi/abs/10.1111/aec.12200

[17] https://www.jstor.org/stable/43199528?seq=1#page_scan_tab_contents

Reform of agriculture

A major source of species extinctions, and of the large scale reduction in the numbers of individuals in not-yet threatened species is the fact that we now live on Poison Planet. The almost universal presence of **toxins in air, water and soil** severely impacts the health of all animals, including insects -- and humans.[18]

There needs to be a rapid transition to agricultural practices that minimise the use of pesticides, particularly neonicotinoids, glyphosate, atrazine, dicamba, and other chemicals with strong indications of having adverse health effects.

This change would have the added benefit of protecting and rejuvenating topsoil, and reducing pesticide and nutrient runoff into waterways.

Redefining economic prosperity

Economic growth as currently defined is unsustainable. Australia is a limited system, and is part of the Earth, which is a limited system. Current economics is organised in such a way that a low GDP growth rate leads to hardship for many people. And, a growing GDP guarantees global suicide.

This is because GDP is an inappropriate, even idiotic measure. Robert Costanza of the ANU is one of many scholars offering an alternative: the Genuine Progress Indicator.[19]

GDP measures all monetary transactions. These may be useful, e.g., purchase of food; useless for society, e.g., share trading; or harmful, e.g., gambling, or the need to clean up plastic pollution in the ocean. It excludes goods and services that are not measured in monetary terms, e.g., voluntary activities that add billions of dollars' worth of benefit to Australians; home vegetable growing; domestic work that keeps families functioning; amateur art and entertainment.

So, if I frequently crash my car, I am adding to the GDP in multiple ways. If I reduce my impact on the environment by driving as little as possible, I am reducing the GDP. Is this sensible?

Costanza has shown that the GPI plateaued in 1976, and has stayed about level, despite the huge increase in GDP since. This shows that "economic growth" over the past 40 years has not increased human wellbeing, but has instead imposed a great cost. The nett increases have been in environmental and social costs, including increasing threats to Australian wildlife -- and humans.

The theoretical base exists for rebuilding a degrowth society[20], in which society's economic wellbeing is protected while shrinking those aspects of the economy that cause harm.

Dennis Gabor (1963)[21] demonstrated that 10% of the working-age population of the USA of his times could have generated all the goods and services of the US economy. With the huge technological advances since, we now have the power to apply his concepts and reorganise society to give economic security to everyone while uncoupling human activities from work. This would lead to a personally far more satisfying lifestyle, and one with hugely reduced environmental damage, indirectly leading to protection of Australian native animals, as part of all life on Earth.

Recently, George Monbiot has advanced a very similar view, although he didn't seem to be aware of Gabor's work.[22]

Reducing global population growth

Humanity has exceeded the limits. Earth Overshoot Day was 1st of August this year, even

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[18] http://ec.europa.eu/environment/integration/research/newsalert/pdf/IR5_en.pdf
https://www.ncbi.nlm.nih.gov/books/NBK11769/

[19] https://www.sciencedirect.com/science/article/pii/S0959378014000685

[20] https://www.degrowth.info/en/

[21] Gabor, D. (1963) [*Inventing the Future*, Secker & Warburg

[22] https://www.theguardian.com/commentisfree/2018/feb/07/robots-jobs-salaried-work-society-unpaid-george-monbiot

earlier than last year's.[23]

We are now using the resources of 1.7 Earths, but only have one.[24]

Our rush toward global extinction is due to the product of economic activity and population. Population control in a high-consuming country like Australia is up to 100 times more effective than in poor countries. This causes an "age imbalance," but that is a problem only because of the current economic system. Applying the reorganisation of society Gabor (1963) advocated would eliminate its negative effects.

87% of the world's poor live in countries with many young people, so even if they merely have two children per woman, their population will continue to grow.[25]

Australian foreign aid can be a tool for improving conditions in poor countries, in ways that help them to control and reduce population growth.

Recommendations

Australia's unique fauna is worth protecting for its own sake. Even more, endangered species are indicators of where urgent specific action is needed to preserve irreplaceable, precious ecosystems. Human survival depends on taking immediate action.

The systemic, general changes I have recommended above are the ones that will improve the probability of human survival on Earth, and of slowing the sixth extinction event:

- Reorganise the economy to uncouple from growth of GDP.
- Reduce birth rates; directly in Australia and through aid and diplomacy in poor countries.
- Apply Dennis Gabor's concepts to uncouple human activities from employment.
- Reform agriculture to improve and protect topsoil, and to eliminate the use of environmental toxins.
- Stop logging in native forests and forest clearing. Instead, increase tree planting including forest regeneration, timber plantations, farm forestry and urban tree planting.
    - Establish the Great Forest National Park in Victoria.
    - Use tree plantations to satisfy Australia's timber and woodchip needs, renegotiating old export agreements.
- Eliminate the manufacture and use of short-life plastic products.
- Keep carbon in the ground:
    - No new oil exploration, including in the Great Australian Bight.
    - No new coal mines.
    - No unconventional gas exploration or exploitation.
- Focus on energy conservation by every means possible.
- Rapid replacement of coal fired electricity generation with renewables.
- Implement societal changes that reduce the need to travel.
- Reduce individual car use by focus on public transport.
- Expand marine and land nature reserves and protection.
- Prevent overfishing, e.g., banning supertrawlers in Australian waters.
- Protect whales from the Japanese, and protect Antarctic krill.

[23] https://www.footprintnetwork.org/our-work/earth-overshoot-day/
[24] https://www.footprintnetwork.org/our-work/ecological-footprint/
[25] https://www.weforum.org/agenda/2015/10/how-are-global-demographics-changing/