



PO Box 2569,  
 Southport  
 Qld 4215  
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## **Submission to the extreme weather Senate Inquiry – recommended by Senator Christine Milne**

Senate Standing Committee on Environment and Communications

Phone: 02 6277 3526

Email: [ec.sen@aph.gov.au](mailto:ec.sen@aph.gov.au)

cc

[Tony.Bourke.MP@environment.gov.au](mailto:Tony.Bourke.MP@environment.gov.au)

**The committee of the Wildlife Preservation Society of Queensland Gold Coast Branch wish to present this submission and make recommendations on treatment of National Parks and Forest Reserves and also on unsafe Agricultural Practices.**

### **We are all sick of hearing “No lives have been lost” in bushfires,**

many of which have been deliberately lit by sadistic humans – perhaps with hopes of acquiring land for housing. In fact millions of our wonderful and precious native animals suffer a cruel death and those which survive the fires often suffer a lingering death from lack of food. Native animals usually die silently – as they do when murdered by cats & dogs we allow to roam in their habitat & homes.

### **Fire also increases the serious loss of insects**

which break down branches & leaf litter. Use of Insect Zappers next to bushland areas does a great deal to destroy the beetles whose larvae which munch up fallen branches & leaves. Insect Zappers are electric lights – often ultra violet surrounded by an electrified grill which fry the insects. They do not attract mosquitoes which are not attracted to light, but only our invaluable native insect species. Wonderful caterpillars such as that of the once common Emperor Gum Moth used to eat leaves of Australian native trees, as did many beautiful Beetles – in the early 20<sup>th</sup> century most leaves had about 30% each leaf missing. As a result the fires at that time were possibly 30% cooler. Car headlights also attract & kill insects – early last century within half an hour of country driving your windscreen was a mess of squashed insects. Now we live in an insect desert.

Dr Max Jacobs (Director General of Forests 1959- 1970 - had noticed that in Australia every leaf on eucalypts had holes from insects and their larvae eating them. He also noted that in the USA, where he was working, the eucalypts leaves had no holes due to absence of the insect and animal predators which eat them in Australia them and the trees grew much faster all other things being equal. He found the same applied in South America and other countries which grow eucalypts for paper pulp.

Recently it can be observed that our eucalypts now have very few holes in their leaves. **This results in hotter fires which are more likely to crown** – that is move to the tops of the trees.

Some of this is due to the disastrous loss in beetles and moths which have caterpillars which eat the leaves. Much is possibly because of widespread use of insect zappers and also the death of millions of insects killed flying into windows and headlights of cars. This also affects the dead branches and leaf litter on the floor of the forest **which used to have little fuel load having been hollowed out by the insects.**

In plantation forests fast growing eucalypt species are now genetically selected – clearly their leaves are toxic to native animals such as insects and koalas (which eat only a few species & only at certain times of the year) and possums & gliders. Anyway forestry practices include the removal of animals using carrots or apples laced with 1080 & the burning off of non desired tree species resulting in a monoculture which does not sustain leaf and wood eating animals.

## History of Two Fires

The fire on 25<sup>th</sup> January 1952 in Canberra had started in the Brindabella Mountains where the farmers had burnt off for green pick & it got away into mountain forests. It moved much faster over the sheep stations of the Canberra plains and that time Mt Stromlo forest and Observatory was burnt. Westridge (now Yarralumla) was then the most westerly suburb in Canberra. Forestry staff and students and volunteers were fighting the fires. A fire which started at the bottom of Red Hill – it must have been from burning bark carried by the furious winds – (there was no lightning or storm) - within two minutes it had spread over the whole hill & it then swept right through to the east coast killing 4 firemen. Friction of tree against tree is another source of spot fires in violent winds.

In Hobart during the 1967 fire started 3 weeks before when a control burn got away. – 1500 houses burnt & 60 people killed.

## Unusually hot and wild winds after lengthy hot spell

In both instances a long warm dry period was followed by horrific winds – the fires crowned – meaning they moved up into the tree tops - & **no amount of control burns or back burning would have stopped them.**

**So why have regular burns which destroy homes of insects and animals which break down leaf litter and dead wood at no cost to our communities.**

## Activities in National Parks

We should not allow hunting & fishing and hotels in National Parks – apart from diminishing the space for animals they are dedicated to protect – the less responsible and less bush savvy people are careless with their fires and leave glass bottles which may trigger fires. They also make tracks destroying more animal homes & kill slow moving animals. Farmers would really appreciate supplementary income if these activities were to happen on their land – hotels or accommodation for large numbers can be in farmland close to the National Parks.

## Agricultural chemicals kill insects

Dr Geoff Monteith said artificial agricultural chemicals kill useful insects which aerate the soil and digest dead plant material – converting it to chemicals which can be taken up by plants. Monteith claims that Invermectin in drenches to kill worms in cattle kills soil improving beetles such as dung beetles. Introduced cane toads also eat insects.

[Appendix 1- Dr Geoff Monteith - notes on his lecture on “Dung Beetles” given at a Brisbane conference “Soils Alive” 17/11/10.](#)

Dr Dianne Allan encourages the growth of ground plants for soil improvement. The rhizosphere of the roots excrete good enzymes – they remove water up to transpiration – there is less leakage of valuable water to groundwater.

**Artificial Nitrogen & Phosphorus fertilizers caused more rapid degradation of soil structure.** With a good biomass of roots there is more efficient uptake of fertilizers & less pollution of waterways & environments [Appendix 2 - Soil Landscape Society - "Soil Carbon & Soil Health" – "Soils Alive"](#)

### **Exotic grasses.**

Don Sands – CSIRO in his talk on **"Invasive flammable grasses and impacts on subsurface biodiversity."** said these grasses were introduced due to sourcing drought tolerant stock feed, grass to control soil erosion, and for weed competition.

However [Love grass](#) – reduces pasture quality.

[Gamba Grass](#) **"the cane toad of grasses"** grows so tall farmers can't see cows to muster them, the lower leaves die – only the top is green, it produces an **enormous fuel load in fires, fire seasons now continuous as farmers burn off for green pick**, it has few natural enemies – insects non-existent here, and the heat from fires **kills soil microflora & fauna & destroys fertility**, Its seeds invade natural habitats and it **precludes regrowth of native vegetation**.

[Buffel, Panic, Molassus & Guinea grasses](#) – are highly flammable, burns increase the load and there are no natural insect or animal enemies.

[Appendix 3 - THECA The Hut Environmental and Community Association Forum 110910 at Q Centre for Advanced Technologies, Tech Court, Pullenvale Q](#)

The longterm results of these introductions can be massive soil loss and erosion during floods and eventual desertification of areas which used to be maintained by the deep roots of native shrubs. More thought should be put into introduction of exotic species as the long term costs clearly outweigh the short term gains. Also fires travel much faster in grass only farming areas and burning rabbits and stock run ahead and start new fires.

### **Burning off beside and beneath forests.**

This is often done to "protect towns and houses from fires" but in fact it leads to the invasion of the area from flammable exotic grasses. It would be more cost effective to have bush regenerators plant deep rooted native grasses and shrubs of low fuel load for permanent fire protection than to have regular burnoffs encouraging exotic weeds & grasses.

Dr Chingrong Chen has conducted a series of trials on effects of burning on soil. Microbes are used as an indicator of change & quality. 1gm soil contains  $10^9$  bacteria. He found elevated  $CO_2$  in the air causes Nitrogen loss in the soil. Frequent fire causes a loss of Carbon & Nitrogen – and affects tree & shrub species in the long term. Repeated burning at Peachester in Queensland was found to affect fungi – burn frequency – every 2 yr the effect was bad - Burns less than 5 yrs or even more are found to be deleterious

[Appendix 4 - Dr Chingrong Chen –Griffith School of the Environment – "Response of Soil Microbial Communities to Global Changes."](#)

## **Floods and effects on reserves and the natural environment**

Holding ponds for toxic mine and CSG waste water are a serious source of pollution to both farming land and environmental areas. During floods they overflow and the waste is carried over the land nearby and flows down the rivers into the sea. These are proliferating at an alarming rate & the chemicals enter dams and rivers and the sea. For a short term profit we are destroying future earnings from both tourism and fishing. The Great Barrier Reef already has its heritage value standing at risk.

## RECOMMENDATIONS

- 1 – There should be a ban on sale of Insect Zappers or a requirement to use them in enclosed areas.
- 2 – We need to have a breeding programme to reintroduce native insects after fires and in forests where they have been lost and have insects work 24 hours a day, 7 days a week, 52 days a year everywhere for nothing at reducing fuel loads.
- 3 – Reduce the use of artificial agricultural chemicals which kill insects and introduce low growing plants under taller crops or in rotation which can fix nitrogen and increase the biomass in the soil. Stop development of plants genetically designed to kill insects as they kill good insects such as rubbish removers,, soil improvers and pollinators as well.
- 3 - We feel careless introduction of exotic grasses will eventually result in massive soil loss and erosion during floods and eventual desertification of areas which used to be maintained by the deep roots of native shrubs. More thought should be put into introduction of exotic species as the long term costs clearly outweigh the short term gains.
- 4 – Beside toads and forests it would be more cost effective to have bush regenerators plant selected deep rooted native grasses and shrubs of low fuel load for ongoing fire protection than to have regular burnoffs.
- 5 – Burns in grasslands and forests should not be carried out at less than 5 yearly intervals or it destroys the ground microflora and fauna and soil structure.
- 6 – We need to stop the rapid expansion of Coal Seam Gas & Coal Mining by removing any subsidies to those industries and instead increasing subsidies and development of Renewable Energy Industries. There would be little risk and future generations as well as ourselves would benefit.

Anne Sutherland Secretary, Wildlife Preservation Society of Queensland Gold Coast Branch

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### Appendix 1 - Dr Geoff Monteith “Dung Beetles” – “Soils Alive” conference Brisbane 27’11/10 - notes

Imported – good to circulate dung into soil.

They are scarabs – all have antennae like bike handles, sense organs between sensory hard protection. Both types eat dung and use it to feed their grubs.

Introduced ball rollers – roll ball away from busy cow pats to their burrow.

Native are buriers – have curved legs.

Cookoos are mushroom feeders.

SEQ spp make own dung from leaves

Aussie beetles leap onto kangaroo bottoms

One spp Brisbane works on dog poo

One for bats lives in hollow trees.

There have been 23 African introductions – which use dry macropod poo not sloppy cow pads – pads harbour intestinal worms – aim is the control of flies so introduce ball rollers.

Invermectin in drenches kills beetles – predators cane toads. Ibis.

## Appendix 2 - Dr Dianne Allan, Soil Landscape Society - "Soil Carbon & Soil Health" – "Soils Alive" notes

Organic & inorganic cation exchange

Till versus no till

Depth to measure – 10-50cm                      Kyoto agreement to 30cm depth

[www.soilhealthknowledge.com.au](http://www.soilhealthknowledge.com.au)

Phyto remediation – plants?

In the rhizosphere of the roots they excrete good enzymes – they remove water up to transpiration – there is less leakage of valuable water to groundwater.

The Exxon Valdez – Nitrogen & Phosphorus fertilizers caused more rapid degradation.

Finally with good biomass of roots there is more efficient uptake of fertilizers & less pollution of waterways & environments

## Appendix 3 - DON SANDS – CSIRO – "Invasive flammable grasses and impacts on subsurface biodiversity."

Notes from THECA The Hut Environmental and Community Association Forum 110910

Q Centre for Advanced Technologies, Tech Court, Pullenvale Q 4069 \$45 - 8.30-4.00

Introduction of these due to sourcing drought tolerant stock feed, grass to control soil erosion, and weed competition.

Love grass – reduces pasture quality

Gamba Grass – so tall farmers can't see cows to muster, enormous fuel load in fires, fire seasons now continuous as farmers burn off for green pick, it has few natural enemies – insects non-existent here, and the heat from fires kills soil microflora & fauna & destroys fertility, seeds invade natural habitats and preclude regrowth of native vegetation..

Buffel, Panic, Molassus & Guinea grasses – highly flammable, burns increase the load, no natural enemies.

These grasses are a **serious threat to biodiversity** – loss of animals and insects, litter breakdown, habitat refuges, and they love climate change.

Signal Grass at Mt Cootha has displaced plants – outcompetes all natives, kills sub-subsurface shrub roots with heat from fires.

Leichhardt's grasshopper is now extinct. Insects often need specific plant species to survive. **Hilltops** have more insects, they are mating sites – exclude them from burning, insects help decompose leaves and detritivores like moths and beetle larvae recycle nutrients. Much sinter activity – improve pH of soil, tunnels allow absorption of moisture.

Control of Grasses – Mechanical no good; Fire counterproductive; Landcare groups use Roundup; Biological – problem in Texas.

## Appendix 4 - Dr Chingrong Chen –Griffith School of the Environment – "Response of Soil Microbial Communities to Global Changes."

Microbes are used as an indicator of change & quality.

1gm soil contains  $10^9$  bacteria.

Elevated  $\text{CO}_2$  in the air causes Nitrogen loss in the soil.

Frequent fire causes a loss of Carbon & Nitrogen – and affects tree & shrub species in the long term.

Forest fire – Evaluated with Phospholipid fingerprinting - PLEA

Repeated burning at Peachester in Queensland it was found to affect:

Fungi – burn frequency – every 2 yr the effect was bad.

Bacteria – made no difference – Amoxia – CO<sub>2</sub> increased – free air CO<sub>2</sub> enriched

Burns less than 5 yrs or even more deleterious