Independent Forestry Panel

Public submission

SUZANNE ARNOLD Submission ID: e8

Organisation:	*Australian for Animals NSW*
Location:	*New South Wales*
Supporting materials uploaded:	*Attached overleaf*

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Topic 1. Sustainability of current and future forestry operations in NSW

Australians for Animals NSW Inc objects to the non transparent nature of the Panel's inquiry.
No information has been made available on who has been invited to the focus groups, how many focus groups have been held, who chaired the groups, what were the subjects discussed and why are there no minutes available of the discussions ?
Further we understand that the list of prospective invitees to the focus groups and interviews has been provided by the government with no transparency or public scrutiny. With no details of representation of any participation of independent scientists, NGOs, community groups, the Panel inquiry has created a situation which facilitates bias.
AFA has contacted several scientists deeply involved in forest ecology and they have made clear that no invitation to focus groups or interviews has been forthcoming.
Further the Indigenous Justice Advocacy Network has not be invited. This is a further omission of important Aboriginal information given that IJAN has launched several important legal challenges.
No option provided by the Panel deals with the appalling inadequacy of legislation and public citizen rights to legally challenge ongoing non compliance of CIFOA by Forestry Corporation NSW.
There has been no upgrading of koala protection throughout the state as a result of the species being declared endangered at the state and federal level. Creating koala hubs in the proposed Great Koala National Park whilst at the same time leaving koalas in all other native forests without upgraded acceptable protection is discriminatory and a further indication of the failure of government to protect this iconic species.
No focus has been placed on ecosystem loss. Koalas are an umbrella species of coastal forest ecosystems. The destruction of koala habitat causes significant loss of the ecosystem biodiversity.
The terms of reference do not reflect the urgency of protecting remaining forests which are incapable of restoration and rehabiliation in the short time period since the Black Summer bushfires which caused catastrophic damage.
The terms of reference are completely inadequate.
Australians for Animals Inc. attachs a scientific submission which was presented to the EPA last year requesting a review of CIFOA. A list of the 31 international and national scientists is included. The submission details the extensive damage caused by the fires, damage that continues with industrial logging in remaining forests.
There is no option in relation the Great Koala National Park which continues to be logged with no boundaries decided, no adequate protection for koala hubs which are a scientific nonsense.
As well, many media have reported the Panel is considering ending native forest logging in four years. The charity has not been able to source this report and there's no reference to this option on the Panel website. Given the extent of circulation in mainstream media of this report, the failure of the Panel to correct the misinformation ensures he public and concerned organisations engaged in the forestry issue have been mislead.
Australians for Animals Inc. believes that any " independent " Panel needs to include genuinely independent experts with no connections to the timber industry.

Independent Forestry Panel

Public submission

The charity awaits its invitation to a focus group or interview as AFA has spent over 30 years engaged in koalas and their habitat, successfully listing the koalas as Threatened under the USA Endangered Species Act. Our staff have undertaken many field trips to north and south coast forests and is deeply engaged with the relevant scientific and legal experts.

Sue Arnold
Co-ordinator
Australians for Animals Inc.
[redacted] NSW
m. [redacted]

SCIENTISTS IN SUPPORT OF SUBMISSION REQUESTING REVIEW OF CIFOA BY ENVIRONMENT PROTECTION AGENCY.

Professor Paul Ehrlich
Bing Professor of Population Studies Emeritus; President, Center for Conservation Biology; Dept. of Biology, Stanford University, Stanford, CA.

Anne Ehrlich
Senior Research Scientist,
Department of Biology, Stanford University
Associate Director Center for Conservation Biology.

Professor Brent D. Mishler
Distinguished Professor, Department of Integrative Biology
Director, University and Jepson Herbaria
University of California, Berkeley

Professor Burney Le Boeuf.
Professor Emeritus, Ecology & Evolutionary Biology
University of California, Santa Cruz

Dr. Peter H. Raven
President Emeritus, Missouri Botanical Garden
Corresponding Member, Australian Academy of Sciences, 1990-

Professor Corey Bradshaw,
Matthew Flinders Professor of Global Ecology
Director Global Ecology Laboratory,
Flinders University
Head Flinders Modelling Node of the Centre of Excellence for
Australian Biodiversity and Heritage.

Professor Chris Dickman,
Professor in Ecology
Fellow of the Australian Academy of Science
University of Sydney.

Professor Will Steffen,
Emeritus Professor,
Inaugural Director of ANU Climate Change Institute
Fenner School of Environment & Society
Climate Councillor, Climate Institute.

Professor David Lindenmayer
Fenner School of Environment & Society,
ANU College of Science,
Fellow of Australian Academy of Science.
Australian Research Council Laureate Fellow 2013-2018
Fellow of the NSW Royal Zoological Society

Professor Bill Laurance,
Distinguished Research Professor,
James Cook University
Fellow Australian Academy of Science
Australian Laureate Fellowship
Prince Bernhard Chair in International Nature Conservation
Utrecht University Netherlands

Dr Grant Wardell-Johnson,
Adjunct Associate Professor
Director Curtin Institute for Biodiversity and Climate
Curtin University.

Professor Frank Carrick, AM
Honorary Professor Sustainable Minerals Institute.
University of Queensland.

Professor John Church
Emeritus Professor Climate Change Research Centre
University of NSW.
Fellow of Australian Academy of Science.

Professor Peter Gill,
Federation University.

Dr Norman K. Sanders- Retired.
Assistant Professor of Geography and Environmental Studies
University of California Los Angeles
Lecturer in Human Ecology at the Australian National University

Dr. Edward Narayan
Senior Lecturer
School of Agriculture and Food Sciences,
University of Queensland.

Dr Kerryn Higgs,
University Associate, University of Tasmania,
Associate Member, Club of Rome.

Dr Stephen Debus,
Honorary Associate, Zoology,
University of New England.

Professor Kate Buchanan
School of Life & Environment Science,
Deakin University.

Professor Nathan Lo
Evolutionary Biologist
School of Life & Environmental Sciences

University of Sydney.

Dr Diana Fisher
Associate Professor
School of Biological Sciences
University of Queensland.

Emeritus Professor Michael Calver
Environmental and Conservation Sciences
Murdoch University. Western Australia.

Dr Andrea Griffin
Senior Lecturer in Conservation Psychology
School of Environmental and Life Sciences
University of Newcastle.

Dr Debra Saunders
Postdoctoral researcher
Fenner School of Environment & Society
ANU

Dr Arthur White
Ecologist
Frog and Tadpole Study Group of NSW.

Dr Nathalie Butt
Research Fellow
School of Earth and Environmental Sciences
Faculty of Science
University of Queensland

Phil Gilmour
Senior Botanist (retired)
Formerly with Ecological Australia Pty. Ltd.

David Milledge
Ecologist
Director Landmark Ecological Services Pty Ltd

Doug Frood
Consultant
Pathways Bushland & Environment
Victoria.

Andrew Benwell
Director
ECOS Environmental Pty Ltd.
New South Wales.

Dr Mark Diesendorf
Founding Director Institute of Sustainable Futures
Honorary Associate Professor in the School of Humanities & Languages, Faculty of Arts, Design and Architecture,
University of NSW

SUBMISSION ON CASCADING IMPACTS OF THE 2019-2020 NSW BUSHFIRES IN SUPPORT OF A REVIEW BY THE ENVIRONMENT PROTECTION AGENCY.

Climate Change

- Key driver of 2019-2020 bushfires was anthropogenic climate change. [1] Josep.G.Canadell
- Climate change is influencing the frequency and severity of dangerous bushfire conditions in Australia.[2] BOM.

Cascading Losses

The 2019-2020 bushfire burnt an estimated 42% of all State Forests.[3] DPIE

The impacts include:

a. Loss of ecological integrity
b. Loss of ecosystem capacity and services
c. Loss of biodiversity
d. Loss of plant species and habitat
e. Loss of invertebrates
f. Loss of vertebrate species and habitat.
g. Loss of aquatic biodiversity
h. Loss and degradation of riparian zones
i. Catastrophic soil loss with erosion impacts.

Research[4] Robert C. Godfree 2021 indicates:

- Across 11 Australian bioregions, l7 major native vegetation groups were severely burnt including up to 67-83% of globally significant rainforests, eucalypt forests and woodlands.
- 50% of known populations or ranges of 816 native vascular plant species were burnt including more than 100 species with geographic ranges more than 500 km across.

The scale of the fires and breadth of vegetation types affected has implications for biodiversity conservation both in Australia and globally. A Planning Department report[5]DPIE estimated soil loss was predominantly in National Parks and State Forests, reducing the "*so-called ecological carrying capacity*" by more than a third in burnt areas.

43% of State Forests had more than 99% of their area in the fire ground. 72 had 75-99% of their area in the fire ground.

Further details in the report included:

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[1] Josep G. Canadell et al. Multi-decadal increase of forest burned area in Australia is linked to climate change. Nature Communications. November 2021
[2] BOM, Bushfire Weather.
[3] Department of Planning, Industry and Environment. NSW Fire and the Environment 2019-2020 Summary. March 2020.
[4] Godfree, R.C., Knerr, N., Encinas-Viso, F. *et al.* Implications of the 2019–2020 megafires for the biogeography and conservation of Australian vegetation. *Nat Commun* **12**, 1023 (2021). https://doi.org/10.1038/s41467-021-21266-5
[5] Department of planning, industry and environment NSW Fire and the Environment 2019-20 Summary March 2020

- A 39% reduction in ecological carrying capacity since 2013.
- 26% of high biodiversity mapped land has been affected.
- 50% of wet sclerophyll forests have been affected.
- 37% of State's rainforest have been affected.
- 61 threatened plant species with sighting records had more than 80% of their records within the fire ground.
- 1.9 million hectares of very high suitability Koala habitat was within the fire grounds representing 22% of the best koala habitat in eastern NSW.
- All 413 records of the endangered yellow-bellied glider population on the Bago Plateau are within the fire ground.
- 50% of records are in areas where the canopy has been partially or fully affected.
- 97% of critically endangered long nose potoroo are within the fire ground.
- 85% of records of the endangered frog *Philora pughi* (Pugh's Mountain Frog)
- 81% of records of Endangered Greater Glider population in Eurobodalla
- More than 25% of records of the Endangered Greater Glider in areas where the canopy has been fully affected
- 84% of records of the Endangered Hastings River mouse
- 99 species have more than 10% of their records within the fire ground.

Biodiversity

A WWF report[6] Professor Chris Dickman indicates almost 3 billion animals had died or been impacted by the fires including following estimates:

- 143 million mammals
- 2.46 billion reptiles
- 180 million birds
- 51 billion frogs
- As many as 14,736 koalas were affected.

Plant Species.

Suitable habitat for 69% of all plant species were burned[7] R.Gallagher (17,1897 species) across Australia. 8% of EPBC Act taxa[8] dcceew.gov.au had more than 50% of their ranges burnt during the 2019-2020 fire season.

Findings in relation to regeneration are particularly relevant to a number of eucalypt species currently intensely harvested.
" *…short fire intervals both before and after the 2019–2020 fire season pose a serious risk to the recovery of at least 595 species. Persistent knowledge gaps about species fire response and post-fire population persistence threaten the effective long-term management of Australian vegetation in an increasingly pyric world.*"

[6] Australia's 2019-2020 Bushfires: The Wildlife Toll 2020
[7] Rachael V. Gallagher et al. High Fire Frequency and the impact of the 20129-2020 megafires on Australian plant diversity. Biodiversity Research. 19/3/2021.
[8] Final National prioritisation of Australian plants affected by the 2019-2020 bushfire season. Research for the Wildlife and Threatened Species Bushfire Recovery Expert Panel.

The Australian Museum's research[9] Isabel T. Hyman estimated:

- 7O of 33 species studied with 399 species had some parts of their range in the fire zone.
- 75 of these species had at least half of their known occurrence in the fire zone.
- 36 species had 75% of their known occurrence burnt.

- Museum study revealed that 10.7% of all analysed species had 50% or more of their known occurrences burned.

Restoration of Flora and Fauna habitat.

Restoring habitat for fire impacted species[10] Michelle Ward.

> * These fires burned ~104 000 km^2 of vegetation across southern Australia, with 545 flora species impacted (Gallagher *et al* 2021).
> * 114 fauna species identified as immediate priorities for conservation action due to a substantial proportion of their habitat being impacted, their threat status, and their high sensitivity to fire (Legge *et al* 2022).
> * Of the 114 priority fauna species, 90 (68 vertebrates and 22 invertebrates) were listed as threatened by IUCN, and/or national legislation (Legge 2022), driven mostly by habitat loss, fragmentation, and degradation (Ward *et al* 2021).

Soil and Erosion

- NSW Planning department [11] DPIE research indicates the combination of fire and follow-up rains could *"trigger major erosion events"*.

- Rainfall in February 2020 triggered increased surface runoff and eroded ash and soil. Entrained ash, plant and soil deposits enhanced sediment concentration in rivers, damaging infrastructure and compromising water quality. Alexandra & Finlayson,2020[12]

- CSIRO[13] Ecos details impacts on burned soil indicating soil is effectively a non-renewable resource.

- Professor David Eldridge, University of NSW's Centre for Ecosystem Science,[14] indicated studies of the effects on soil after bushfires point to huge erosion losses, ranging from loss of soil carbon and nutrients such as nitrogen and phosphorus, to clogged waterways and reduced habitats.

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[9] Isabel T. Hyman et al. Impacts of the 2019-2020 Bushfires on New South Wales Biodiversity: A Rapid Assessment of Distribution Data for Selected Invertebrate Taxa. Technical Reports of the Australian Museum on line. 2020
[10] Michelle Ward et al. Restoring habitat for fire-impacted species across degraded Australian landscapes. IOP Science. 2022
[11] NSW Fire and the Environment 2019-20 Summary DPIE.
[12] Floods after bushfires:rapid response for reducing impacts of sediment, ash and nutrient slugs.
[13] CSIRO ECOS Recovery of Australia's soils following bushfires. May 2020. Issue 266 Recovery.
[14] Sydney Morning Herald July 26, 2021.

- *"Soils take a long time to recover after fire because formation rates are extremely slow. A typical rate for NSW is about one centimetre every thousand years. Repeated high-intensity fires will slow down this rate of soil formation" he said.*

- Soil Science Australia research[15] *A teaspoon of soil is estimated to contain several thousand species of micro-organisms, and other invertebrates such as nematodes (round worms), annelids (earth worms), and microarthropods (springtails and mites). One square metre of soil can contain more species in it than a square kilometre of rainforest. These soil organisms play very important roles such as breaking down organic matter and providing nutrients to plants.*

Freshwater fish

- Most fire affected areas subsequently experienced higher than average rainfall in late summer that lead to widespread debris/flows and consequent mass mortality of aquatic fauna (e.g. Silva et al. 2020).[16] Threatened Species Recovery Hub.

- Water quality readings in the vicinity of these events (*impacts of bushfires on aquatic fauna and conservation response to impacts)* showed massive spikes in turbidity (up to 5833 NTU) and rapid and sometimes prolonged falls in dissolved oxygen to anoxic levels immediately following the fires. Oxygen levels stabilised within six months at most sites but kept dropping to anoxic levels throughout the year following the fires at one site. Turbidity remained high at all sites and kept spiking over the following year.[17]

Riparian Zones

- Of the 81,304 km of stream analysed, ~29% (23 266 km) were impacted by extreme or high-severity burning, with vegetation canopy completely consumed, or completely scorched and partially consumed. A further 21% (17,138 km) experienced moderate to low-severity burning, with partial canopy scorching or understorey burning. Such widespread, synchronous burning of riparian systems is unprecedented.[18] Fryirs KA

Eucalypt Species

- In Mountain Ash and Alpine Ash forests, high severity bushfires may be occurring at a frequency greater than the time it takes the canopy tree species

[15] Soil Science Australia

[16] Summary of the 2019/20 bushfire impacts on freshwater fish and emergency conservation response in south-eastern Australia. NESP Threatened Species Recovery Hub Project 8.3.6 update report, Brisbane.

[17] ibid

[18] Rivers up in smoke:impacts of Australia's 2019-2020 megafires on riparian systems. CSIRO Research notes. 16/5/2022

to reproduce and this could cause demographic collapse, leading to a transition to a new ecosystem dominated by other species.[19] Lindenmayer.

- Research[20] Dana M. Bergstrom published evidence of the collapse of 19 ecosystems including Alpine Ash forests. Collapse is defined as the state where ecosystems have changed in a substantial, negative way from their original state and are unlikely to recover.

- Logging and wildfire can significantly alter the height and density of vegetation in forests.[21]

[19] Lindenmayer D., Mackey, B., Gould S., Norman P. and Taylor C. (2021) How does climate affect bushfire risks in the native forests of south-eastern Australia? Report No.1. Griffith University and The Australian National University, https://www.bushfirefacts.org/'.

[20] Dana.M.Bergstrom et al. Combating ecosystem collapse from the tropics to the Antarctic. Global Change Biology . 25/2/2021

[21] Detecting the effects of logging and wildfire on forest fuel structure using terrestrial laser scanning (TLS) NicholasWilson RossBradstock Michael Bedward. https://doi.org/10.1016/j.foreco.2021.119037 https://doi.org/10.1016/j.foreco.2021.119037.