

waterwatch CAMPFIRE

Community Assessment Monitoring Program for Fire Impacted River Ecology

*Communities Caring
For Catchments*

Year 1 Report



environment ACT
ACT URBAN SERVICES



Natural Heritage Trust
Helping Communities Help Australia
A Commonwealth Government Initiative

Waterwatch is a community water quality monitoring program that brings people together from all parts of the community to educate, monitor, restore and protect our waterways.

Contents



	Page
Part 1: January 2003 Bushfires in the ACT	
Introduction	1
Final Extent of the Fires—2003	2
Part 2: CAMPFIRE Project Development	
Monitoring Strategy	3
Part 3: Monitoring Sites and Dates	
Waterwatch Monitoring Sites 2003	4
Fire Severity	5
Monitoring Dates	6
Part 4: CAMPFIRE 1 Year Findings	
ACT Rainfall and Discharge	7
Turbidity Summary	8
Turbidity and Rainfall	9
Phosphorus Summary	10
Water Temperature Summary	12
Electrical Conductivity Summary	13
pH Summary	14
Dissolved Oxygen Summary	15
Percent Dissolved Oxygen Summary	16
Macroinvertebrate Summary	17
CAMPFIRE Summary	19
Part 4: Site Information Results	
• Flints Crossing	20
• Murray's Corner	21
• Tidbinbilla Lower Site	22
• Tidbinbilla Upper Site	23
• Gibraltar Creek Upper Site	24
• Gibraltar Creek Lower Site	25
• Uriarra Crossing	26
• Casuarina Sands	27
• Kambah Pool	28
• Pine Island	29
• Point Hut	30
• Tharwa Bridge	31
• Angle Crossing	32
• Lower Tuggeranong Creek	33
• Condor Creek	34

Contents



	Page
Part 4: Site Information Continued	
• Coppins Crossing	35
• Weston Creek GPT	36
• Cooleman Ridge Dam	37
• Naas Crossing	38
• Glendale Crossing	39
• Hospital Creek North	40
• Hospital Creek Central	41
• Hospital Creek South	42
• Bogong Creek North	43
• Bogong Creek Central	44
• Bogong Creek South	45
• Little Dry Creek	46
• Rendezvous/Middle Creek Storm Sampling	47
Part 5: From Monitoring to Action	
• The Natural Resource Management Team	48

Part 1: January 2003 Bushfires in the ACT

Introduction

What Has Happened?

In early January 2003 a 'dry' thunderstorm occurred across the highlands of the ACT, NSW and Victoria, causing many lightning strikes and forest fires in mountainous country. In the ACT there were initially three fires, with others just across the border in NSW.

Then, on Thursday 16th and Friday 17th of January, as a result of changing weather conditions these fires began to expand significantly. On Saturday 18th January, the incredibly strong winds and high temperatures brought the fires into the urban area of Canberra, with loss of life, housing and other property.

Effectively, all the original fires combined into one huge fire front, which blackened over 70% of the ACT and impacted huge areas across the Upper Murrumbidgee catchment.

What Are the Expected Affects of Fire on Catchments and Water Quality?

Fire removes vegetation cover, exposes soil and reduces evapotranspiration. Consequently, the catchment will respond much more quickly to rainfall and produce more runoff initially. Once vegetation begins to establish and is growing quickly, catchment response and runoff may be reduced below pre-fire levels. Where riparian zones have been burnt, there will be reduced buffering of runoff. Stream temperatures will be greater and more light will reach the water surface. While the understorey has been removed over large areas, many trees still have their leaves, although they may be scorched and dead. There will be a significantly increased input of leaves, other organic debris, ash and sediment into the stream.

The severity of fire effects may ultimately depend on post fire rainfall, amount and timing, combined with the catchment geology. Heavy rain on bare soils and an impermeable catchment will result in substantial sediment, carbon and nutrient transport into the river. The sediment may accumulate in local storage areas, such as pools, dependent on discharges and stream power. Where the carbon is deposited in similar areas it will undergo bacterial breakdown, lowering dissolved oxygen concentrations in the water column and releasing nutrients. Algal and phytoplankton growth will potentially be enhanced with the increased light and nutrient supply. In urban catchments there may be toxicants such as heavy metals or hydrocarbons from household appliances or material that have been mobilised as a result of fire.

Community Action

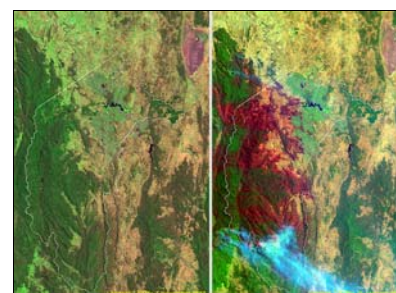
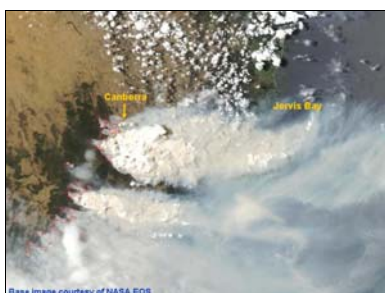
As a response to these events Waterwatch in collaboration with the Cooperative Research Centre for Freshwater Ecology (CRCFE) initiated a community Waterwatch monitoring program that aimed to monitor the affects of bushfires on our waterways.

This program has become known as **CAMPFIRE** (Community Assessment Monitoring Program for Fire Impacted River Ecology).

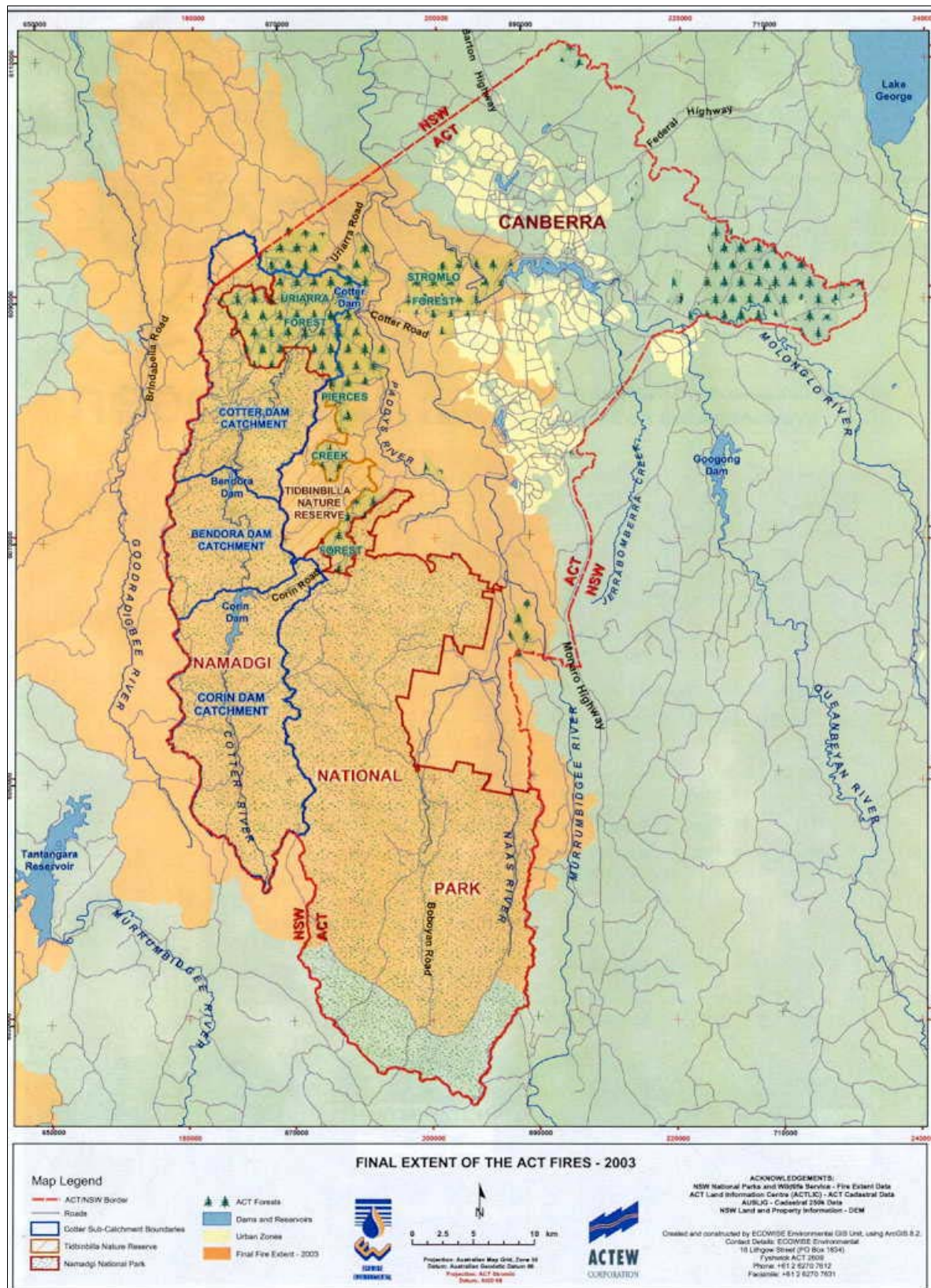
Campfire is a network of existing and new community monitoring groups that work in partnership to monitor the ecological affects of the bushfires on our waterways and catchments.



Tidbinbilla Nature Reserve Upper Site before and after the fires.



Final Extent of the Fires—2003



Map courtesy of Actew Corporation and Ecowise Environmental