WWF AUSTRALIA

Doctors for the Environment Australia

TREES: THE FORGOTTEN HEROES FOR OUR HEALTH

MARCH 2023

Acknowledgements

WWF-Australia and Doctors for the Environment Australia acknowledge the Traditional Owners of the land on which we work and their continuing connection to their lands, waters and culture. We pay our respects to Elders, past and present, and their emerging leaders. We recognise that Aboriginal and Torres Strait Islander Peoples have cared for Country for millennia, and we seek to learn from Indigenous ways of knowing, being and doing. We acknowledge that sovereignty of this land was never ceded.

WWF-Australia
WWF is one of the world's largest and most experienced independent conservation organisations, with over 30 million supporters and a global network active in nearly 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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Doctors for the Environment Australia
Doctors for the Environment Australia is an independent, non-governmental organisation of medical professionals from all Australian states and territories. Our members are GPs, surgeons, physicians, anaesthetists, psychiatrists, paediatricians, public health specialists, academics, medical students and researchers, bringing leadership and expertise from every branch of medicine.

We are guided by a vision of 'Healthy Planet, Healthy People'. We advocate to protect health through care for our natural environment and to work to address the adverse health impacts caused by damage to it.

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EXECUTIVE SUMMARY

From urban tree cover to towering eucalypt forests, trees play a critical role in supporting human health and well-being. But unfortunately, many people aren't aware of or have simply forgotten about all the amazing things trees do for us every day.


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Only a quarter of Australians say they know a lot of the health and well-being benefits of trees, with two-thirds believing more education is needed on this topic.[1]

More and more, we are turning to technology to help us tackle the ever-growing health, environmental and climate crises. Yet part of the solution already exists and has done for millions of years - trees.

This report outlines the growing evidence connecting trees and forests to human health and well-being, including how trees cool our communities, minimise the effects of climate change, help protect us from infectious diseases and even boost our mental health.

This report aims to inspire and inform readers about the incredible benefits of trees. We hope it encourages Australians to get outside and spend more time in nature amongst them.

HOW TREES IMPROVE OUR HEALTH AND WELL-BEING

1 TREES IMPROVE OUR AIR QUALITY

Trees produce much of the oxygen that we breathe and protect us from air pollution, (a major contributor to ill health and premature death)

2 TREES ARE RAINMAKERS

Trees take water from the ground through their roots and trunks. This **water vapour is released into the air through leaves and eventually makes clouds.**

3 TREES HOUSE OUR POLLINATORS

Pollinators depend on healthy habitats including Australian trees and native vegetation for their survival. Pollinators are involved in producing approximately one third of the global food supply.

4 TREES ARE GOOD FOR OUR MOOD

Trees can help lower depression and anxiety. Living in a neighbourhood with higher tree canopy cover can **reduce the odds of people developing psychological distress.**

5 TREES AID HEALTHY DEVELOPMENT IN CHILDREN

Tree climbing is key for developing strength and spatial awareness, but less than 20% of Australian children participate in tree climbing today, compared with 65% of their parents' generation.

6 TREES HELP CURB CLIMATE CHANGE

Trees capture and store carbon. Each year, the Earth's **forests absorb around a quarter of all the CO_2 humans add to the atmosphere.**

7 TREES ENCOURAGE PHYSICAL ACTIVITY OUTDOORS

Trees **provide shade for exercise and make our neighbourhoods leafy and attractive**, which makes people more likely to walk and cycle.

8 TREES COOL OUR COMMUNITIES

Trees provide protection against extreme heat-related deaths by providing shade. **Trees can help cool our streets by up to 25 degrees!**

9 TREES PROVIDE CONNECTION TO COUNTRY

Trees are a **vital part of the way Traditional Custodians have lived** on Country throughout time.

10 TREES HELP PROVIDE SAFE, CLEAN WATER

Trees **purify and protect freshwater**. Melbourne has some of the highest-quality drinking water in the world because it comes from water catchments surrounded by forests!

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FOREWORD

Dr Kate Wylie
MBBS BHSCi
FRACGP DCH
Chair, Doctors for the Environment Australia

Dr Stuart Blanch
Senior Manager, Towards Two Billion Trees, WWF-Australia

We can all admire the magnificence of trees. Yet there is so much more to these multitasking champions than natural beauty. As the title of our joint report suggests, trees are the forgotten heroes for our health. Our snapshot of the research makes it clear that trees are not only vital for our health and well-being, they can also save lives.

That's why Doctors for the Environment Australia and WWF-Australia are pleased to work together to highlight the many connections between trees and our health.

Trees feed us, shelter us from heat, and filter our water and air. They can help reduce stress and lessen depression, anxiety and other mood disorders.

Tree climbing helps children develop strength, spatial awareness, creativity, imagination and self-confidence. Trees encourage people of all ages to exercise.

Intact ecosystems of trees can help prevent some infectious diseases from emerging in humans. Globally, the loss of trees through deforestation and land use change has increased our exposure to wild animals and the risk of zoonotic diseases, which jump from animals to humans. Up to 70% of emerging infectious diseases worldwide are zoonotic.

Trees are integral to Aboriginal and Torres Strait Islander Peoples. Trees provide connection to Country and lore, which is critically important for health and well-being. The cultural knowledge of trees was and remains a vital part of the way First Nations Peoples have traditionally lived and sustainably thrived on Country for millennia.

Trees fill nature's medicine chest. Over one-third of all medicines we use today are derived from nature. Who knows how many more remedies are waiting to be discovered in our forests?

We need trees as homes for a wide range of pollinators that help us secure a bountiful and diverse food supply.

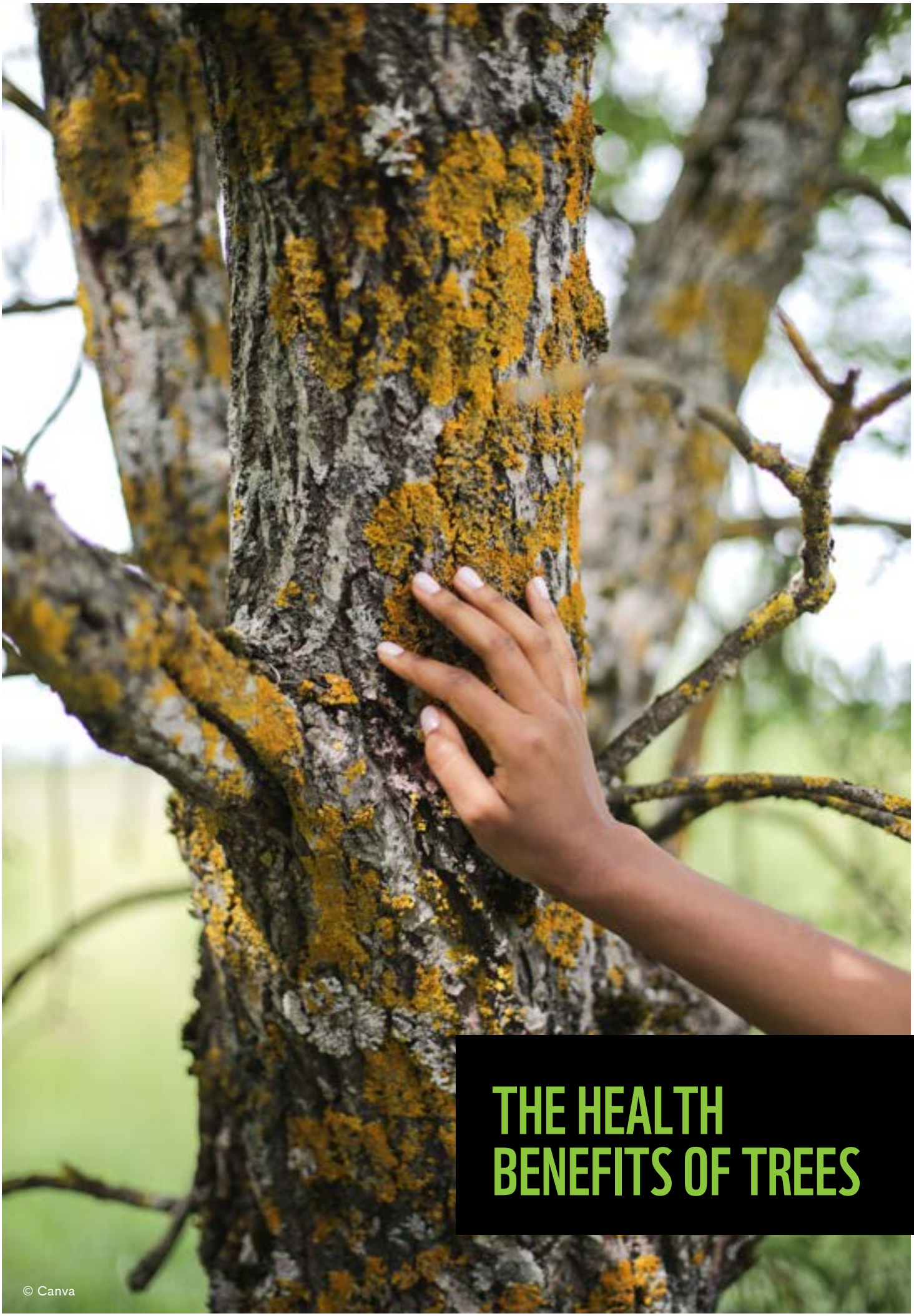
We know climate change is one of the greatest threats we currently face and that it's vital we rapidly transition away from fossil fuels to greener renewable energy solutions. Trees can play a helping hand in mitigating the climate crisis by absorbing and storing carbon dioxide in their trunks and roots.

Doctors for the Environment Australia is an organisation of medical professionals whose vision is for a healthy planet and healthy people. Action on climate change and the protection of nature are vital to its mission to protect the health of people and the communities in which they live.

WWF-Australia is part of the WWF network – the world's largest and most influential independent conservation organisation. In 2020, WWF-Australia launched Regenerate Australia, the largest wildlife recovery, landscape and community regeneration program in the nation's history. As part of our plan to Regenerate Australia, we aim to save and grow two billion trees by 2030 by stopping excessive tree-clearing, protecting our existing trees and forests and restoring native habitat that has been lost.

For both science-led organisations, trees are crucial to our mission. We share a common goal: advocating for existing forests to be protected and more trees to be planted to reconnect habitat, shade our cities, and improve lives.

So please, read on about the wonderful, magical, life-saving powers of trees.



THE HEALTH BENEFITS OF TREES

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SAFER, CLEANER WATER

Safe and clean water is vital for health. Humans rely on water for drinking, domestic use, food production and recreational purposes.


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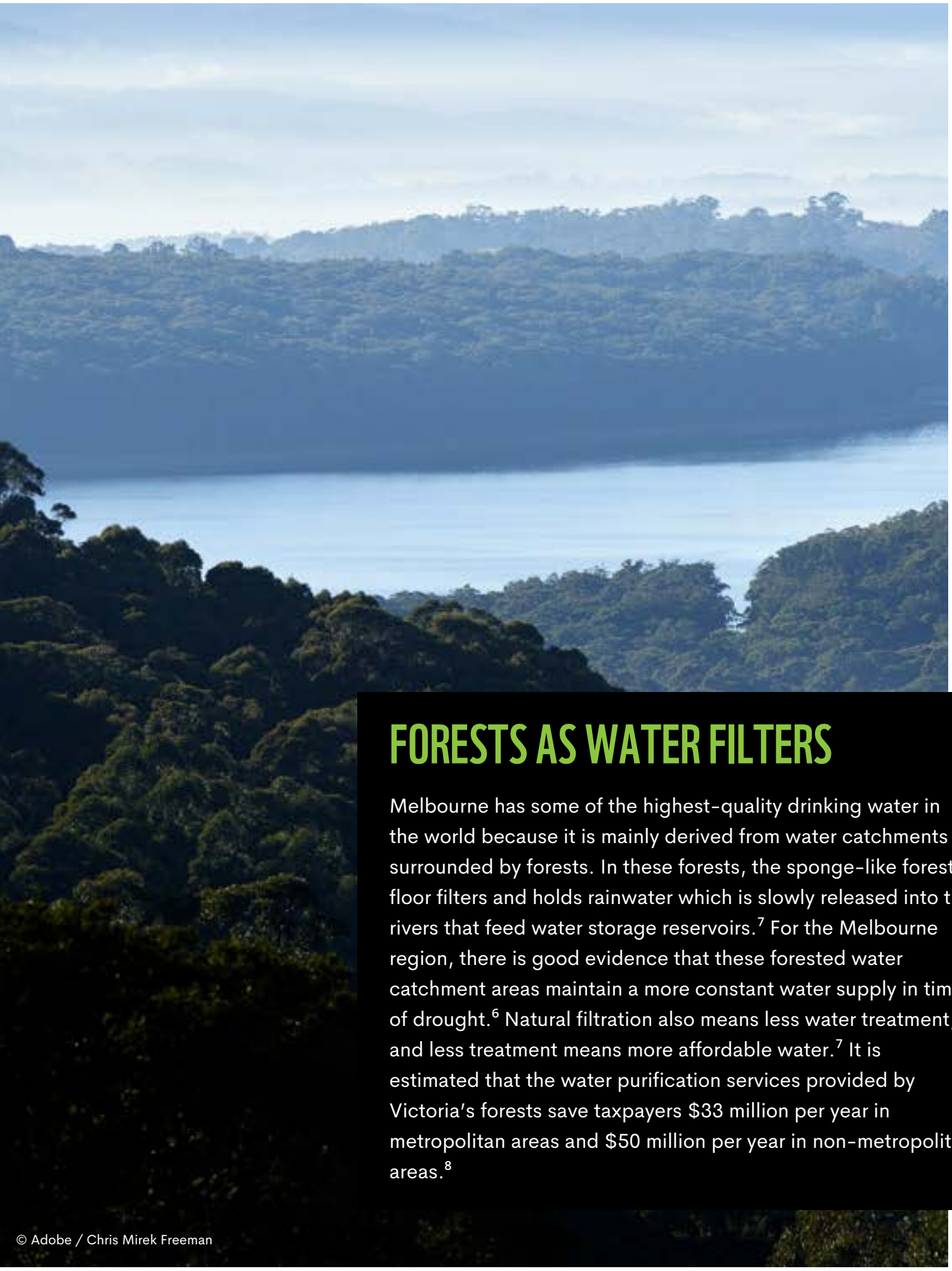
In contrast, inadequate or inappropriately managed water exposes people to preventable health risks. For instance, waterborne diseases are thought to be among the most common acute illnesses worldwide.[2]

Trees are critical for supplying, purifying, and protecting freshwater. Trees act like sponges that absorb water when it is plentiful and release it over time, recharging groundwater supplies.[3] This is because tree roots create and maintain underground pores, enabling water to seep into the soil more easily. Without trees, water is more likely to run straight over the Earth's surface, making it less available in times of need. The root systems of trees also draw water up from the ground and release it into the air as vapour through their leaves. This process, known as 'evapotranspiration', recharges the air's moisture, helping to form rain clouds both locally and in distant locations.[4] On average, at least 40% of rain over land originates from this process.[4]

Furthermore, trees and their root systems prevent soil erosion, trap sediments, and absorb pollutants, thereby removing them from the water. Because of this, trees are also critically important for improving water quality.[5] Forested water catchment areas reduce the need for artificial treatment of drinking water, thus reducing the costs, emissions from energy-intensive treatment processes and difficulty of supplying water to people.[6]



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FORESTS AS WATER FILTERS

Melbourne has some of the highest-quality drinking water in the world because it is mainly derived from water catchments surrounded by forests. In these forests, the sponge-like forest floor filters and holds rainwater which is slowly released into the rivers that feed water storage reservoirs.[7] For the Melbourne region, there is good evidence that these forested water catchment areas maintain a more constant water supply in times of drought.[6] Natural filtration also means less water treatment, and less treatment means more affordable water.[7] It is estimated that the water purification services provided by Victoria's forests save taxpayers $33 million per year in metropolitan areas and $50 million per year in non-metropolitan areas.[8]

PROTECTION AGAINST HEAT AND SUN EXPOSURE

Over the past 200 years, extreme heat events have caused more deaths in Australia than any other natural hazard.[9]

Heat is a particular issue in large cities where average temperatures can be 1–3°C higher than average temperatures in inland rural and regional areas.[10]

SHADED SURFACES CAN BE
11 - 25°C
COOLER THAN UNSHADED SURFACES

Trees lower surface and air temperatures by providing shade. Research has shown that shaded surfaces may be 11–25°C cooler than the peak temperatures of unshaded surfaces.[11] They also cool air via evapotranspiration, with the water vapour released from the leaves of trees reducing the temperature of the surrounding area. Using the sun's energy, individual trees can transpire hundreds of litres of water per day, and for every 100 litres of water transpired, trees have cooling power equivalent to the daily operation of two average household air-conditioning units.[4]

Trees are also important for protecting against ultraviolet (UV) radiation from the sun, which can cause sunburn, skin damage, eye damage and skin cancer.[12] Children are particularly at risk, with UV damage accumulated during childhood and adolescence strongly associated with an increased risk of skin cancer later in life.[13] [14]

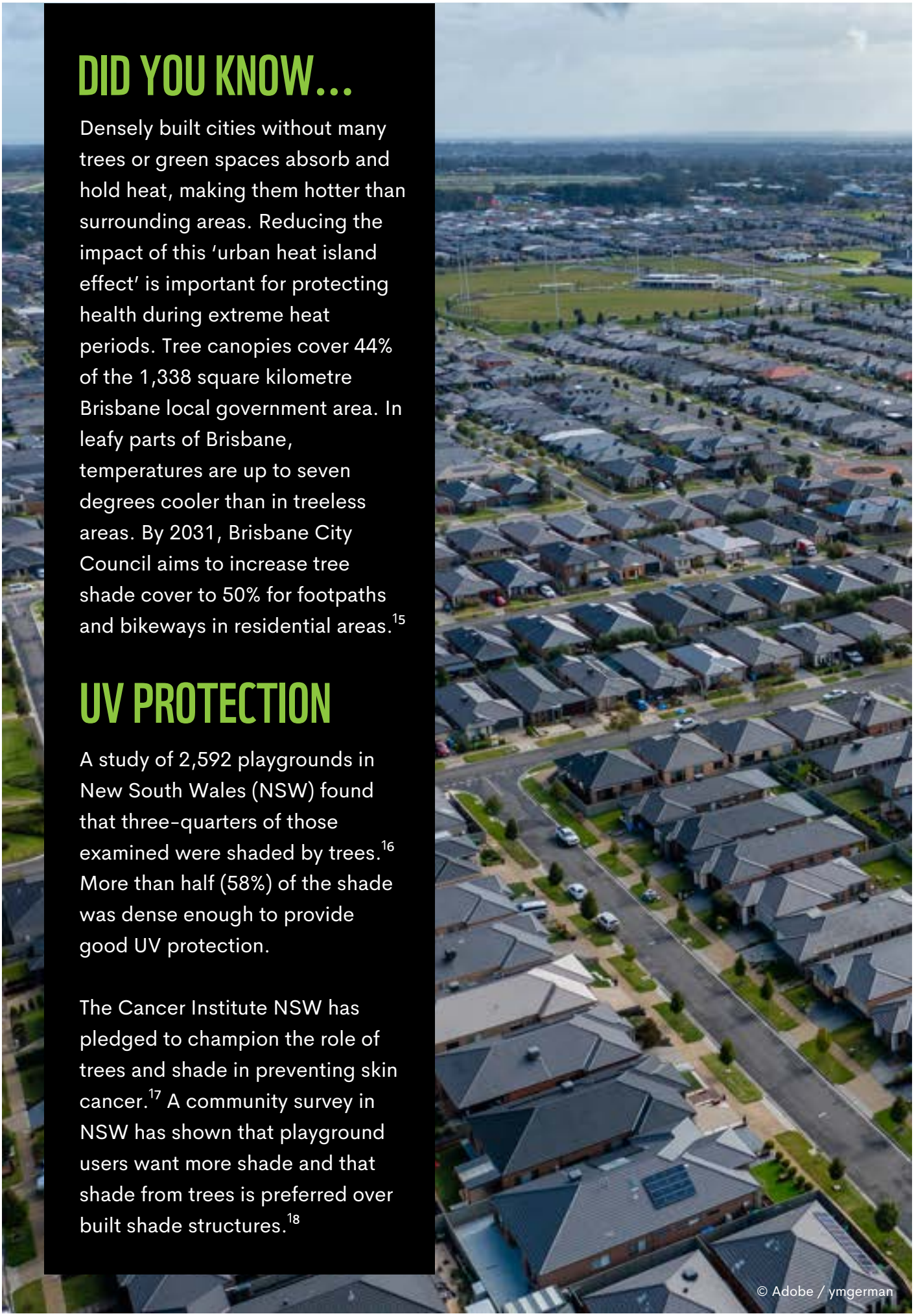
DID YOU KNOW...

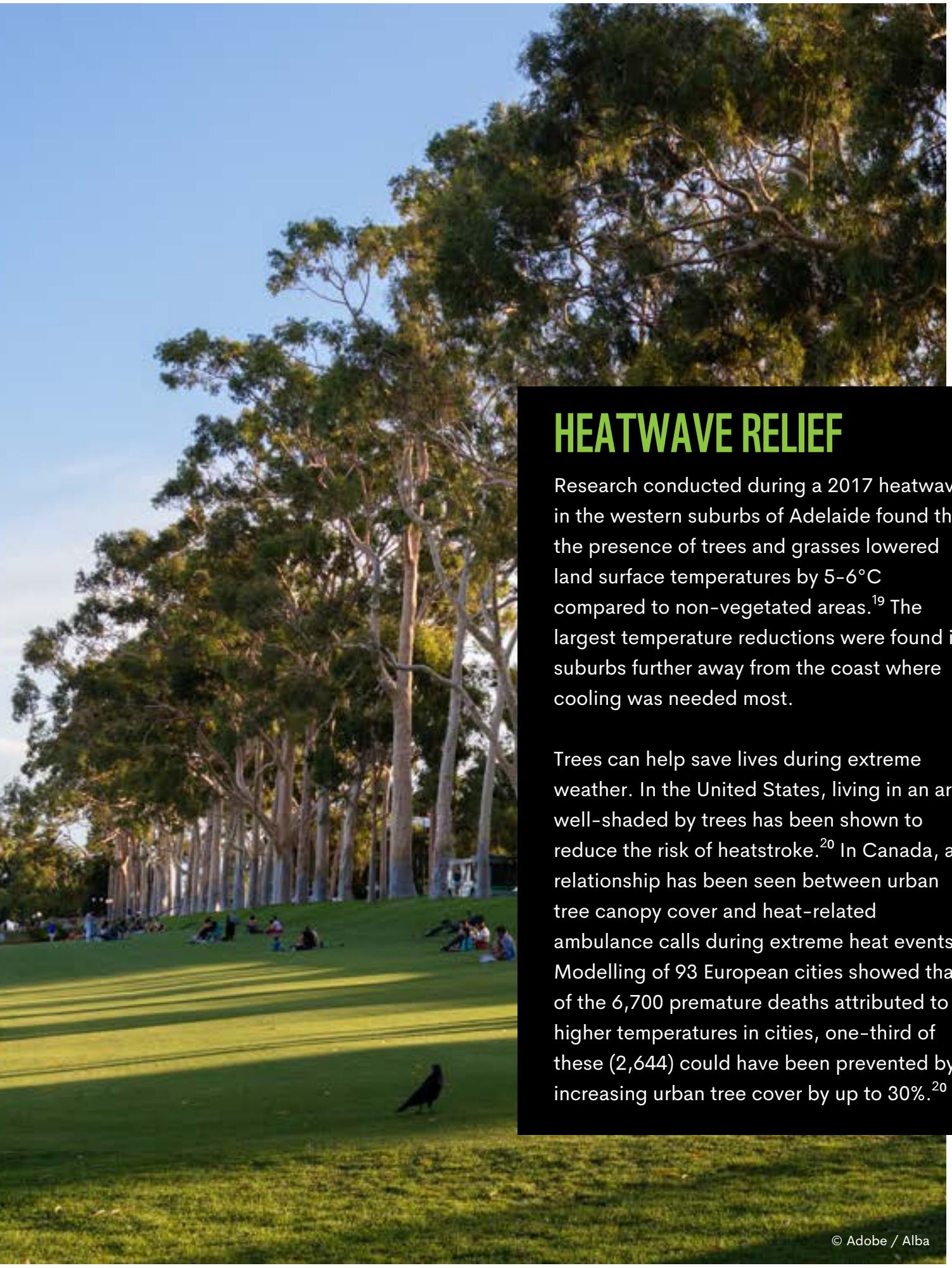
Densely built cities without many trees or green spaces absorb and hold heat, making them hotter than surrounding areas. Reducing the impact of this 'urban heat island effect' is important for protecting health during extreme heat periods. Tree canopies cover 44% of the 1,338 square kilometre Brisbane local government area. In leafy parts of Brisbane, temperatures are up to seven degrees cooler than in treeless areas. By 2031, Brisbane City Council aims to increase tree shade cover to 50% for footpaths and bikeways in residential areas.[15]

UV PROTECTION

A study of 2,592 playgrounds in New South Wales (NSW) found that three-quarters of those examined were shaded by trees.[16] More than half (58%) of the shade was dense enough to provide good UV protection.

The Cancer Institute NSW has pledged to champion the role of trees and shade in preventing skin cancer.[17] A community survey in NSW has shown that playground users want more shade and that shade from trees is preferred over built shade structures.[18]





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HEATWAVE RELIEF

Research conducted during a 2017 heatwave in the western suburbs of Adelaide found that the presence of trees and grasses lowered land surface temperatures by 5-6°C compared to non-vegetated areas.[19] The largest temperature reductions were found in suburbs further away from the coast where cooling was needed most.

Trees can help save lives during extreme weather. In the United States, living in an area well-shaded by trees has been shown to reduce the risk of heatstroke.[20] In Canada, a relationship has been seen between urban tree canopy cover and heat-related ambulance calls during extreme heat events.[20] Modelling of 93 European cities showed that of the 6,700 premature deaths attributed to higher temperatures in cities, one-third of these (2,644) could have been prevented by increasing urban tree cover by up to 30%.[20]

CLEANER AIR

Sometimes referred to as the lungs of the Earth, trees produce much of the oxygen that we breathe.

They also protect us from air pollution, a major contributor to ill health and premature death in Australia.[21]

Air pollution worsens asthma and lung disease and is a risk factor for heart disease, stroke, lung cancer and diabetes.[22] [23] [24] It can also hinder lung development in children and increases risk of pre-term birth and low birth weight, which have lifelong adverse health consequences.[25] [26] [27] Adverse health effects can still occur at very low levels of pollution, even those below current air quality guidelines.[28]

Trees remove fine particles of pollution from the air, which are particularly damaging as they can be inhaled deep into

DID YOU KNOW...

Air pollution in Australia contributes to more than 3,000 premature deaths per year.[21] It has been estimated that reducing fine particle pollution in Sydney air by 10% over 10 years would result in about 650 fewer premature deaths and 700 fewer respiratory and cardiovascular hospital visits.[29]

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the lungs and cause inflammation. They also absorb gaseous pollutants such as sulphur dioxide and nitrogen dioxide, which primarily come from burning fossil fuels and motor vehicle exhausts which are strong respiratory irritants.[30] This means trees make an important contribution to the health of people, particularly those living in large cities.[31] [32]

Trees also protect against dust storms, which reduce air quality and can contribute to ill health.[33] [34] This is because trees and their roots store water and stop soils from becoming dry and exposed, preventing wind erosion. As many parts of Australia become hotter and drier due to climate change, dust storms are likely to become increasingly frequent.[35] This makes protecting and replanting trees rather than bulldozing them ever more important.

REDUCING AIR POLLUTION

In a study of the role of urban trees in addressing air pollution in 245 cities around the world, it was found that trees provided an average of 1.3 million people with a large enough reduction in fine pollution particles to generate significant health benefits.[36]

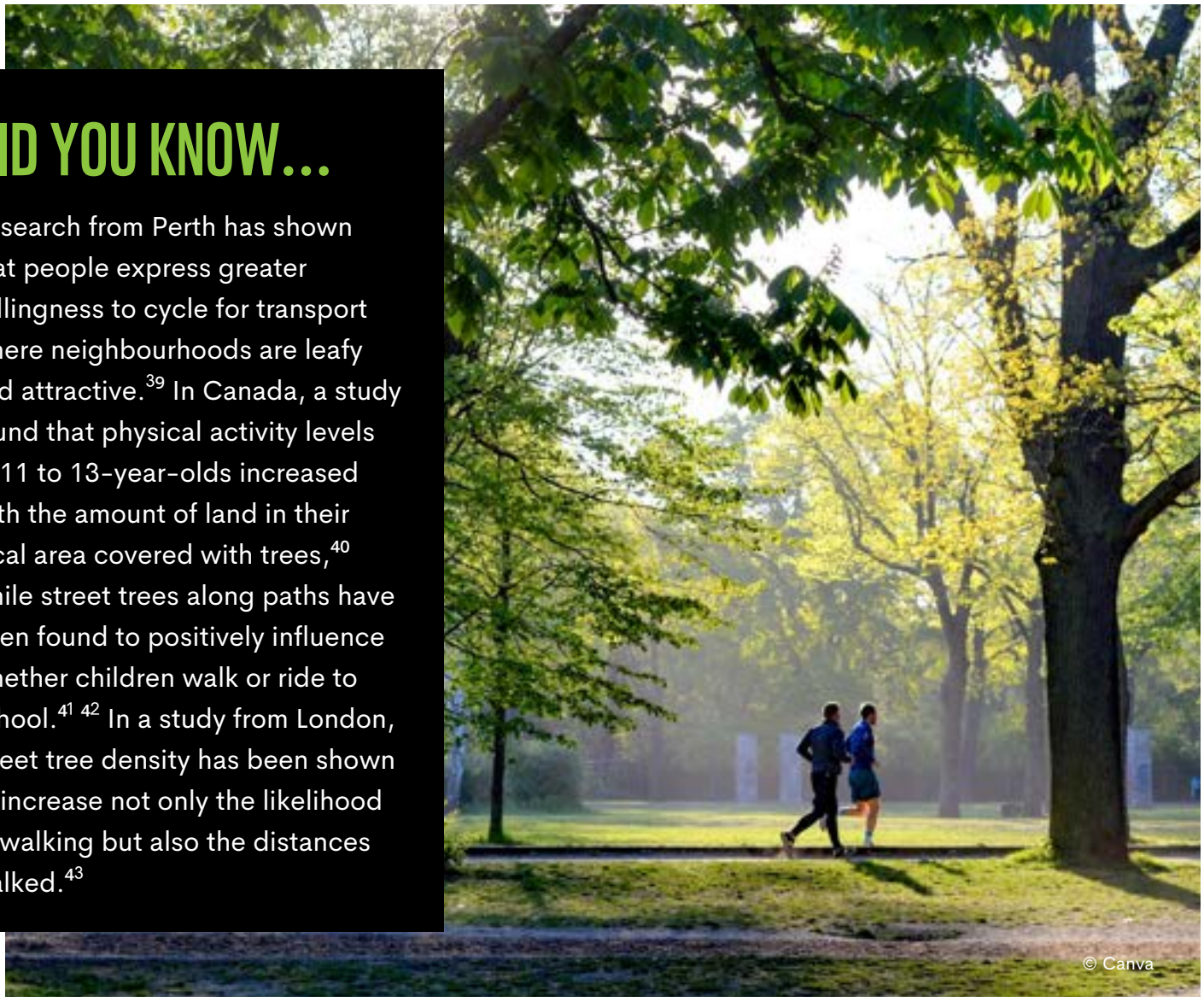
AIR POLLUTION CAN INCREASE THE LIKELIHOOD OF:

PROMOTION OF PHYSICAL ACTIVITY

Regular physical activity is essential for good physical and mental health.

In Australia, less than half of adults, a third of children and only 2% of teenagers meet physical activity guidelines.[37] The diseases most closely linked to physical inactivity are diabetes, coronary heart disease, stroke, and bowel, uterine and breast cancers. Physical inactivity is responsible for more than 6% of the cancer burden in Australia, second only to tobacco smoking.[37]

Trees encourage outdoor physical activity by providing shade, thermal comfort and improving neighbourhood aesthetics.[38] They can also increase pedestrian and cyclist safety as well as perceptions of safety by providing a physical and psychological buffer between the traffic and footpaths.



DID YOU KNOW...

Research from Perth has shown that people express greater willingness to cycle for transport where neighbourhoods are leafy and attractive.[39] In Canada, a study found that physical activity levels of 11 to 13-year-olds increased with the amount of land in their local area covered with trees,[40] while street trees along paths have been found to positively influence whether children walk or ride to school.[41] [42] In a study from London, street tree density has been shown to increase not only the likelihood of walking but also the distances walked.[43]

HEALTHY DEVELOPMENT OF CHILDREN

There is clear evidence that children need regular opportunities to play outdoors in natural environments for their health, well-being and development.[43] [44]

Substantial research documents key differences between play occurring outdoors compared to indoors.[45]

Tree climbing represents play that is natural, unstructured, and sometimes 'risky'. This type of play is vital for developing physical strength, spatial awareness, creativity and imagination.[45] [46] [47] It also enables risk negotiation and problem-solving and builds self-confidence and resilience in children.

Concerningly, a study of over 1,000 Australians showed that less than 20% of children participate in tree climbing today, compared with 65% of adults who climbed trees during their childhoods.[48] Reasons cited included high use of device screen time, parents' lack of leisure time and crime and safety concerns.[48] Experts agree that providing our children with safe and supportive opportunities to play outdoors and climb trees again should be prioritised.[45]

Injury statistics indicate that people tend to overestimate risks from children's outdoor play, in some cases leading them to limit children's play opportunities unnecessarily. This means children miss out on play experiences that are good for their health, development, learning and well-being.[45]

20%

OF AUSSIE KIDS CLIMB TREES TODAY COMPARED TO 65% OF THEIR PARENTS' GENERATION

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AIDING CHILD DEVELOPMENT

While research examining the relationship between trees and child and adolescent development in the Australian setting is still lacking, examples from elsewhere give us some insights. A recent study from Canada found that scores assessing a child's ability to meet age-appropriate developmental expectations were higher among children with greater exposure to outdoor green space and that this association was particularly pronounced for tree-filled areas.[49] Similarly, a British study of adolescents found that being in woodlands daily was associated with higher cognitive development scores and a lower risk of emotional and behavioural problems.[49]

IMPROVED MENTAL HEALTH

Almost half of all Australian adults will face mental ill health at some point during their lives.[50] Mental health disorders contributed 13% of Australia's total burden of disease in 2018, making this the fourth-highest disease group.[51]

A growing body of research suggests that being in nature may be an important tool for addressing Australia's mental health crisis. For instance, evidence shows that close proximity to green space can lead to less depression, anxiety and other mood disorders, particularly for children and people with low incomes.[52] While less research has focused exclusively on the role of trees, a study of 46,000 people living in Sydney, Newcastle, and Wollongong found that neighbourhood exposure to 30% or more tree canopy was associated with 31% lower odds of developing psychological distress when compared with exposure to less than 10% tree canopy cover.[53] Urban green spaces with open grass rather than a tree canopy did not deliver these same benefits.

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DID YOU KNOW...

A range of studies have pointed to the restorative and healing influence of nature, and this is being considered in the modern design of hospitals. The Royal Children's Hospital in Melbourne has been built so that 80% of hospital rooms have a view of the surrounding trees and parklands, with the remainder looking out at vegetated courtyards. Almost all the internal spaces are infused with natural light, while the external façade of the building has been designed to reflect the colours of the bark and leaves of the surrounding eucalypt trees.[54] [55]

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THE GROWING TREND OF FOREST BATHING

Shinrin-yoku, or forest bathing, is a traditional Japanese practice that involves walking slowly through a forest, using all the senses and taking care to breathe deeply. Studies from Japan have shown that forest bathing can lower stress levels, improve sleep quality and mood and reduce anxiety and depression, among other health benefits.[56] [57] In Japan, forests are protected and accredited for forest bathing, and doctors refer patients at high risk of stress-related illness to forest bathe for specified periods of time. Indeed, forest bathing now forms part of preventative healthcare in the Japanese health system.

The potential health gains from forest bathing are increasingly recognised in Australia, particularly in Victoria, where forest bathing opportunities are now offered by Parks Victoria[58] and the Royal Botanic Gardens.[59]

CONNECTION TO COUNTRY

For Aboriginal and Torres Strait Islander Peoples, trees are far more than objects in the landscape, but rather vital entities, each with its own life force and fundamentally interconnected to people.

For millennia, trees have provided Aboriginal and Torres Strait Islander Peoples with shelter, shade, materials for tools and transportation (e.g. canoes), food and medicines. Many trees continue to have great spiritual value, holding ancestor stories, marking sites of ceremony, birthing and burials and much more. They serve as a source of identity for Aboriginal and Torres Strait Islander Peoples and provide connection to place or Country. In turn, connection to Country is critically important for the health and well-being of Aboriginal and Torres Strait Islander Australians.[60] [61] [62]

Clayton Enoch
Land and Sea Custodian Coordinator, Wuthathi Aboriginal Corporation

"Being on Country you feel better mentally, physically, you go walking with the old fellas (Elders)... being shown this and that, it's just good for your mental health."

THE STORY OF THE BLACK BEAN TREE

Within the Girringun Indigenous Protected Area (Northern Queensland), one of the lush and green sacred gateways to the Great Barrier Reef, lies a tree that tells us the truth about the land that surrounds it. "We have a tree here called the black bean tree", explains Jirrbal Traditional Owner Sonya Takau from Girringun Aboriginal Corporation. "It produces a very toxic fruit, but our people knew how to leach the toxins from that. And it was a staple diet for our people". But as the climate is changing, so is the black bean tree.

"Normally, around September through to November, it's supposed to flower into this beautiful orangey-red flower… When it does flower at that particular time when it's supposed to, it tells us that the storm season is approaching".

But sadly, as Sonya reveals, "The flowers are coming on much later now." Nature has functioned as a 'calendar' for Aboriginal and Torres Strait Islander Peoples for thousands of years, so for species like the black bean tree to lose their function as a seasonal indicator is a unique and jarring cultural loss.

The Black Bean Tree by Jirrbal artist Beau Pennefather Motlop

"I've been talking to my family and the old people, and they're saying it's changing. Something's not right".

Sonya Takau
Girringun Aboriginal Corporation

PROTECTION AGAINST CLIMATE CHANGE

Climate change has been recognised as the greatest health threat facing humanity this century.[63] [64]

The health impacts of climate change are broad and mediated by increases in extreme weather events, changes in the transmission and spread of mosquito-borne and other climate-sensitive diseases, air pollution, reductions in crop yields, fish stocks and freshwater availability, social unrest, and population displacement.[63]

Trees play a critical role in mitigating climate change and thereby protecting people. As trees grow, they absorb carbon dioxide (CO_2), a major greenhouse gas. This is converted into carbon and stored in the trees' branches, leaves, trunks, roots and in the surrounding soil.

Each year, the Earth's forests absorb around a quarter of all the CO_2 humans add to the atmosphere.[65] In total, these forests lock away more carbon than exists in all accessible oil, gas, and coal deposits.[65] [66] Large, old trees are particularly important for carbon storage.[67] [68]

In contrast, when trees in forests are logged or lost, carbon is released back into the atmosphere, worsening climate change. Australian Government data and expert modelling shows that over the period 2010-2020, logging and land clearing were responsible for approximately 14% of Australia's total greenhouse gas emissions on average per year.[69]

THE EARTH'S FORESTS ABSORB

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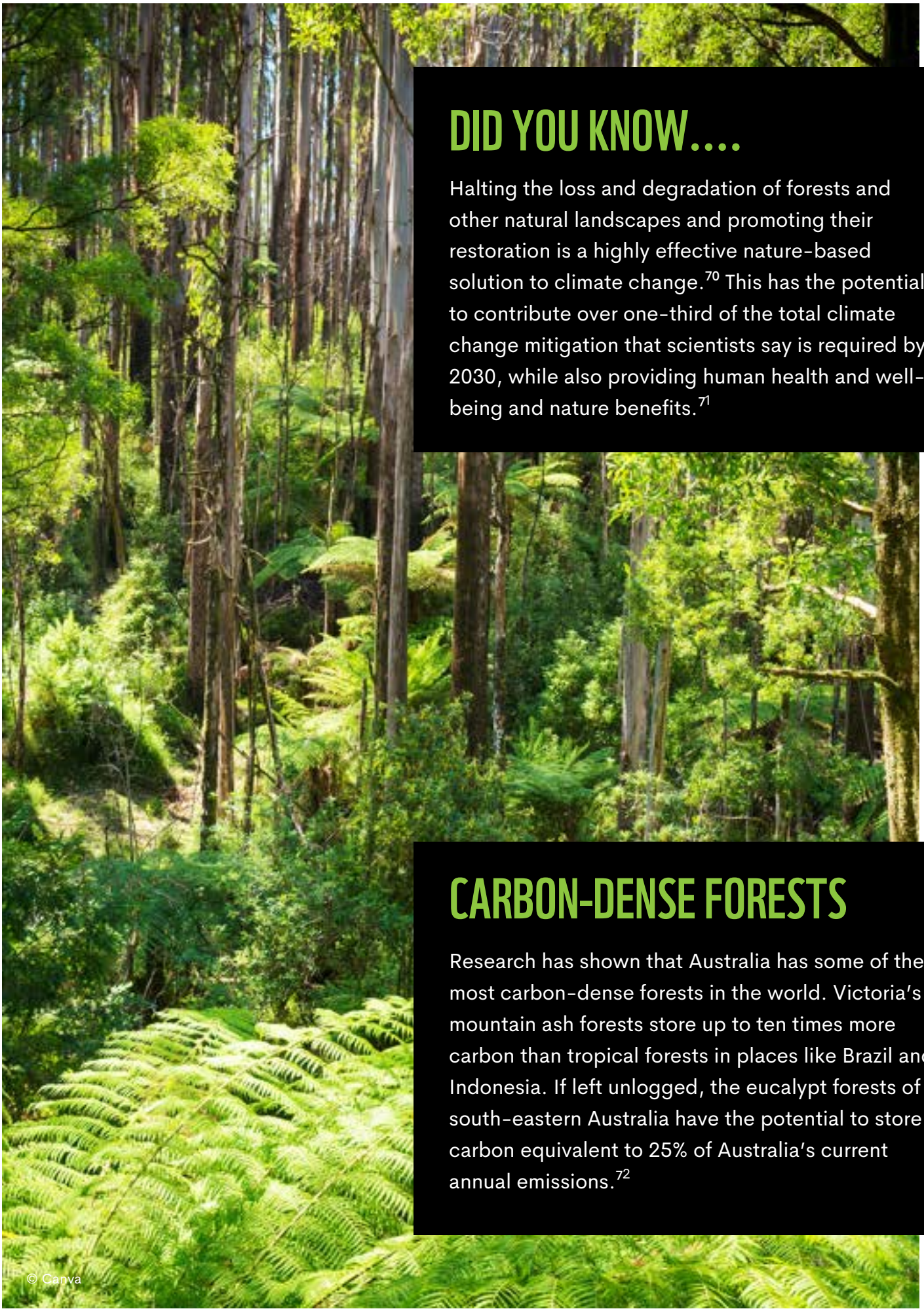
OF ALL THE CO_2 HUMANS ADD TO THE ATMOSPHERE



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DID YOU KNOW....

Halting the loss and degradation of forests and other natural landscapes and promoting their restoration is a highly effective nature-based solution to climate change.[70] This has the potential to contribute over one-third of the total climate change mitigation that scientists say is required by 2030, while also providing human health and well-being and nature benefits.[71]

CARBON-DENSE FORESTS

Research has shown that Australia has some of the most carbon-dense forests in the world. Victoria's mountain ash forests store up to ten times more carbon than tropical forests in places like Brazil and Indonesia. If left unlogged, the eucalypt forests of south-eastern Australia have the potential to store carbon equivalent to 25% of Australia's current annual emissions.[72]

REDUCTION OF INFECTIOUS DISEASES

Trees are a key line of defence against the emergence and spread of infectious diseases.

When we clear forests and remove natural habitat, wild animals are displaced, and their behaviour is altered.[73] One effect of this can be increased contact with humans as the animals search for new habitats, which increases the risk of infections being transferred.

Up to 70% of emerging infectious diseases worldwide are zoonotic, that is, they are spread from animals to humans.[73] As human pressures on nature grow, the frequency of zoonotic diseases has increased.[74] Zoonotic diseases that have emerged over the last century include Ebola, SARS, MERS, Zika and Covid-19.

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HABITAT LOSS AND DISEASE

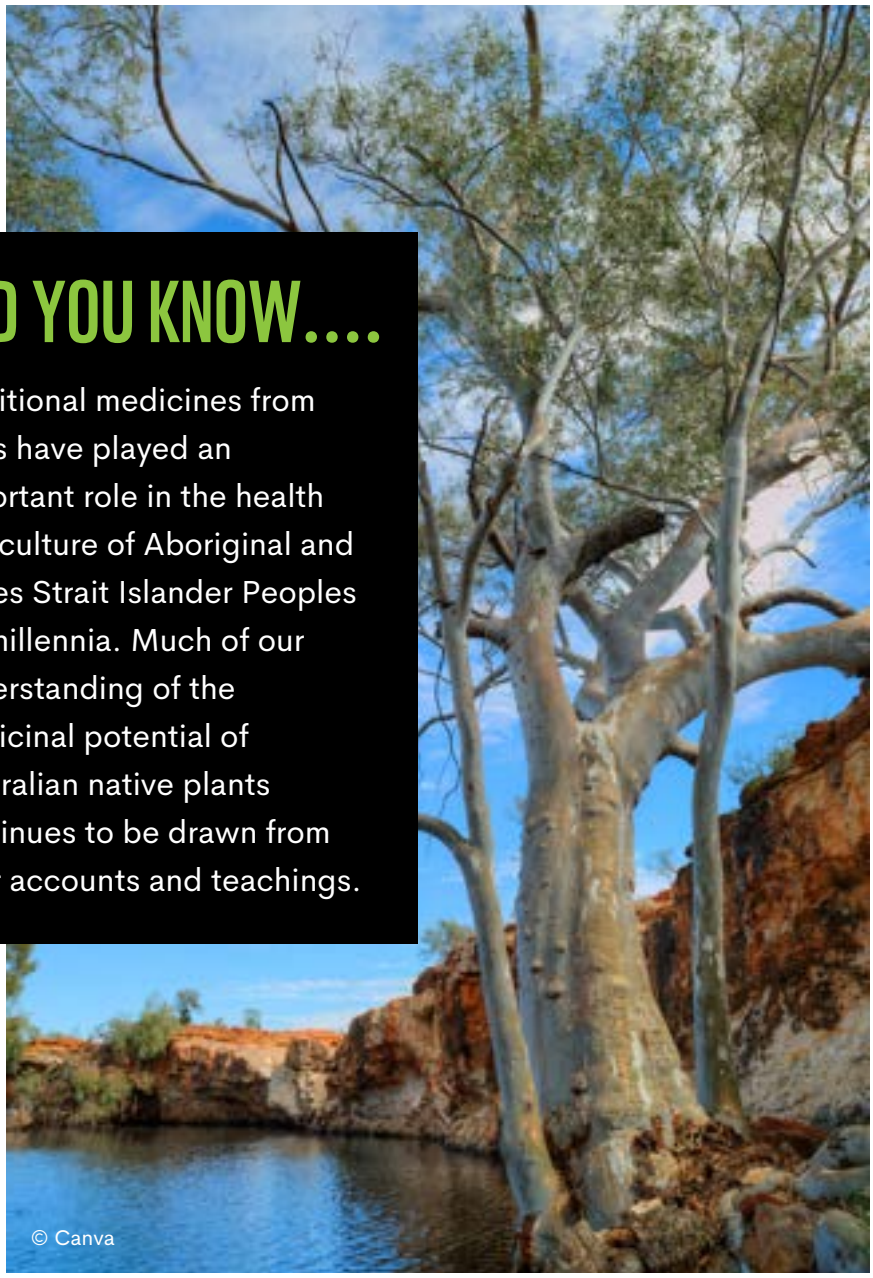
There are links between many diseases and the loss of habitat due to deforestation and land clearing. An Australian example is Hendra virus, an often fatal virus that can be spread from bats to horses and sometimes from horses to humans. Before human settlement, bats moved over large areas of continuous coastal forest in eastern Australia, feeding on a broad range of flowering and fruiting native trees and vegetation.[75] The emergence of Hendra virus has been linked to the extensive destruction of these forests, which had the effect of forcing bats into human areas to avoid starvation.[76] In some parts of subtropical Australia, more than 95% of winter foraging area of fruit bats has been destroyed.[77] A recent study has suggested that restoration of flowering trees in remnant forests to provide bats with food may prevent this 'spillover' of infection from bats to humans.[78]

Land use change has been identified as responsible for almost half of all documented past emerging zoonotic disease outbreaks.[79]

SOURCES OF MEDICINES

Australia has many unique trees found nowhere else in the world. These have evolved to thrive in often harsh conditions, producing chemicals that are a potential source of medicines.

Aboriginal and Torres Strait Islander Peoples have used plants for their medicinal activities for thousands of years. For example, they used kino, a type of gum from trunks of eucalypt trees, for its ability to fight infections, and its antibacterial properties have since been confirmed by Western science.[80] Tea tree oil was used by the Bundjalung people of New South Wales on wounds and for throat ailments and continues to be known for its antibacterial and antifungal properties.[81]



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DID YOU KNOW....

Traditional medicines from trees have played an important role in the health and culture of Aboriginal and Torres Strait Islander Peoples for millennia. Much of our understanding of the medicinal potential of Australian native plants continues to be drawn from their accounts and teachings.

New anti-inflammatory compounds have been discovered from trees such as *Tristaniopsis laurina*, or water gum, which are found along the banks of streams in eastern Australia, and from *Dodonaea polyandra*, commonly known as the 'hop bush' tree and traditionally known as 'uncha' which is used for toothache and related ailments by the Kuuku I'yu Northern Kanju People of Cape York Peninsula.[82] [83] Preliminary studies on native fruits from Australian trees have found that some (e.g. the quandong (*Santalum acuminatum*) or Kakadu plum (*Terminalia ferdinandiana*)) show potential in laboratory conditions to be active against cancer cells.[82]

Understanding all the benefits of compounds from Australian trees is a work in progress, so there is a danger we might lose important species through deforestation before we even discover their impressive healing properties.

HOMES FOR POLLINATORS

Pollination is the process of transferring pollen from one plant to another, which allows the growth of seeds and fruit.

While in some cases, the wind and rain blow pollen between plants, in most cases bees and other insects or animals are necessary for this process.

Because of this, pollinators are essential for a healthy food supply. They include bees, butterflies, beetles, moths, birds and mammals such as bats and possums. In turn, pollinators depend on healthy habitats, including Australian trees and native vegetation, for their survival.

In Australia, horticultural and agricultural crops need bees for optimal pollination. Without plentiful numbers of healthy trees such as gums, banksias and wattles for our bees to feed on, they would not be able to pollinate plants, and our food supply would be at risk.[84]

GLOBAL FOOD SUPPLY

Pollinators are involved in producing approximately one-third of the global food supply, and the yields of 75% of crop species are improved by animal pollination. Pollination also affects the nutritional quality of certain foods and is especially important for our dietary micronutrients. It is estimated that animal pollinators provide us with 7% of folate, 20% of vitamin C and 41% of vitamin A consumed globally.[84] [85]


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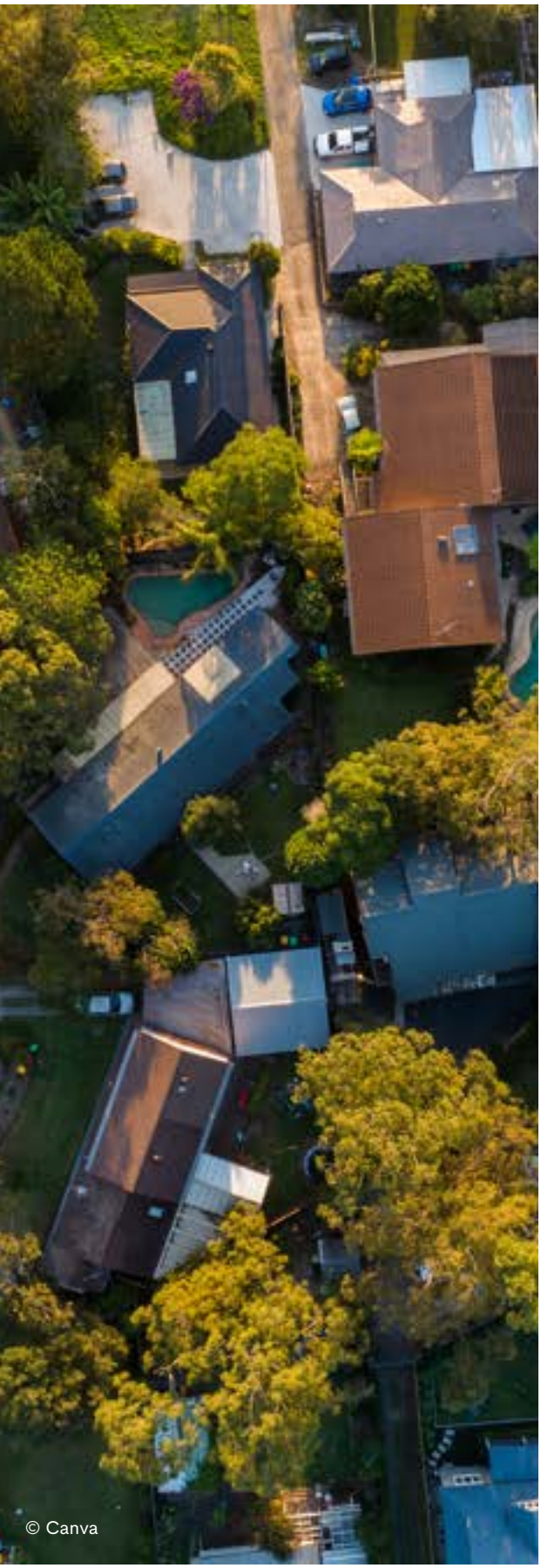
CONCLUSION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The science is clear: we need trees in order to live healthy, happy lives. Human health and the health of our trees and forests are inextricably linked. From the air that we breathe to the water and foods we consume, trees have a vital and direct impact on our health and well-being.

But trees, and the benefits they bring, are disappearing at alarming rates due to deforestation. Australia remains the only developed nation on the world's deforestation hotspots list, a fact which 80% of Australians are currently unaware of.[1] Indeed, in the time it takes to read this sentence, two Australian trees would have been cut down or damaged – that's two trees lost every second, 140 lost each minute, 70 million every year.

Protecting and restoring forests is a nature-based solution to the climate and nature crises. Australia needs to urgently transition from a deforestation hotspot to a world leader in reforestation and move away from native forest logging to plantations.

To enable trees to support and sustain people now and into the future, we must protect and restore Australia's trees and forests and become a world leader in saving and growing trees. We should ensure increased access to trees for all, which can in turn play a big part in resolving some of our major public health issues.

So while some of us may have lost sight of the ways in which trees benefit us, our hope is that the future is a world where trees and their immense importance will be celebrated, cherished and forgotten no longer. We believe the more Australians understand the value of trees and the benefits they provide, the more they will be motivated to protect them.

After all, our well-being, our communities, our wildlife, our planet. We *all* need trees.

LEARN MORE

To learn more about the benefits of trees for our health, planet and wildlife, as well as actions you can take to protect them, visit **wwf.org.au/we-all-need-trees**

STORIES FROM DOCTORS

Dr John Van Der Kallen
Rheumatologist
Mulubinba
(Newcastle, NSW)

"Trees and forests are invaluable for my health and the health of my patients. They provide a calm and quiet environment which allows me a calm and quiet environment which allows me to recover from the day-to-day stresses of a busy job and our high intensity society. For over 25 years, my wife and I have been planting and growing trees on our property. We have now grown a forest which gives us immense pleasure. This is home to a huge number of birds, insects and reptiles, and each time we visit there seem to be even more. The atmosphere that this creates is unlike anything that we have in the city.

It is just critical that trees and forests are valued for what they provide - clean air, clean water, fertile soils, biodiversity and a place of solace from our hectic lives. I grew up in the city, surrounded by concrete, but I now realise how important trees and forests are for my health."

Dr Dimity Williams
GP, Author
Wurundjeri Country
(Melbourne, VIC)

"The scientific value of trees is clear and this report lists the ways they benefit people.

But really, it all boils down to an emotional connection - I just love trees! Their enormous variety of shapes, sizes and scents is gorgeous and they can be climbed, lent on or sprawled under. Watching the shifting of a canopy as it rocks in the wind is mentally revitalising, soothing stress and restoring focus. I start each day lying under gumtrees gazing up through their branches. It steadies me for the day ahead. And the antics of the rainbow lorikeets, magpies and butcherbirds who visit the trees make me smile no matter what's going on. I'm sure this daily ritual helped me weather the storm of working in general practice through Melbourne's long lockdowns."

Dr Jennifer Conway
Rural GP
Wurundjeri Country
(Warburton, VIC)

"Forests have been part of my life since childhood with my family going on many camping trips to the Victorian High Country amongst the Victorian High Country amongst the beautiful and now threatened Alpine Ash forests. As a teenager, I thought I might be a park ranger if I didn't get into medical school, so I could live and work all year round in such environments. Even back then, there was awareness that being out in the forest made me feel happy. Hiking and taking in the vistas from the mountain tops brought a sense of exhilaration and peace.

Fast forward 40 years and that sense of wonder has not changed at all. I have chosen to live with my family in the magnificent Upper Yarra Valley, surrounded by the glory of the forests of the Central Highlands. These are home to many threatened and endangered species such as the Leadbeater's possum and Greater Glider and the awe-inspiring Mountain Ash trees."

Dr Richard Yin

Retired GP
Whadjak Noongar
Boodjar (Perth, WA)

"We had 3 big trees in our backyard when I was a kid; a Jacaranda, a Japanese Pepper, and a White Gum. I learnt to climb on the Jacaranda. With its coarse bark made for gripping, it was the perfect tree to learn on. The Pepper Tree was where we built our cubby and hid from Mum and Dad.

Once we shot lead pellets into the White Gum so its smooth skin was peppered with holes. Years later, when I went back home, I saw that the holes had been covered over and the trunk was smooth again, like it never happened and I was forgiven. Trees are like that.

My home now has a Jacaranda. My kids learnt to climb on it. It's one reason why we bought it. In summer, we hide safely from the sweltering sun under its wide canopy. Nearby, in the veggie patch, the wilted chard isn't so lucky.

I know that we need trees. Maybe it's time that we gave back a little. They don't ask for much."

Alison Rowley

3rd year medical student at Flinders University, Adelaide.
DEA National Students Committee.
Tarntanya Country (Adelaide, SA)

"Are trees important? Yes, yes, a thousand times yes! Trees are a vital part of our ecosystem and provide shelter, food, and shade. They are a way of connecting us with past and future generations; planting a tree today is a way of providing for those that come after us. After all, trees were here long before us and will be here long after we're gone (as long as we don't cut them all down!).

They are also a way of connecting us to each other across the world; every country is different, but every country has trees. Everyone has touched wood or a leaf or sticky sap that's impossible to get off your fingers at some point. Finally, on those days where you want to connect with yourself and with nature rather than with other people, trees and forests give you the opportunity to do just that. All it takes is a ten-minute walk in the forest, far away from the hustle and bustle of everyday life, far away from your phone, to help you feel grounded and centred. Trees are a vital part of our lives!"

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